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**ADOLESCENTS' PERSPECTIVES OF PHYSICAL EDUCATION: A NATIONAL AND
LOCAL FOCUS**

By

Alexandra C. Wiseman

A Thesis

**Submitted to the Faculty of Graduate Studies
Through the Faculty of Human Kinetics
in Partial Fulfillment of the Requirements
for the Degree of Master of Human Kinetics at
the University of Windsor**

Windsor, Ontario, Canada

2013

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Adolescents Perspectives of Physical Education: A National and Local Focus

by

Alexandra Wiseman

APPROVED BY:

Dr. G. Salinitri, External Examiner
Faculty of Education

Dr. S. Woodruff
Department of Human Kinetics

Dr. P. Weir, Advisor
Department of Human Kinetics

May, 2013

DECLARATION OF ORIGINALITY

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ABSTRACT

While PE is as an avenue for students to be physically active and learn about health behaviours; PE enrolment is declining. Mixed methodology was used to examine adolescents' health profiles and gain understanding of their perspectives of PE. Part 1 identified relationships over a two year period between: PE Rating, PA, and health variables using data from the NLSCY. Part 2 examined adolescents' perspective of PE through four focus groups. Overall, PE was preferred over other subjects by 78% of participants; and preferring PE predicted higher frequencies of PA, lower BMI, and higher self-esteem. Participation in high school PE was influenced by students' impressions of PE, the environment, gender, course uniqueness, course conflicts, and teacher influence. In summary, the majority of Canadian adolescents prefer PE, it has an influence on health, and is an avenue for PA; therefore efforts need to be made to increase PE enrolment and participation.

DEDICATION

I dedicate this thesis to my first educators, my parents.

“A river cuts through a rock, not because of its power, but its persistence”

Jim Watkins

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GLOSSARY OF TERMS

Mean (M) – the sum of all observed scores divided by the total number of observations

(Russo, 2003)

Median (*M*) – the middle value in a ranked distribution of values (Rubin, 2012)

Non-School-Based Physical Activity (NSBPA) – Physical activity outside the school

environment. Within this study, this variable consisted of physical activity outside of school, within the past 12 months, without a coach/instructor, with a coach/instructor, and physical activity through groups/lessons

Physical Activity (PA) – the expenditure of energy as a result of bodily movement

(Fishburne & Hickson, 2005)

Physical Education (PE) – a school-based subject created to assist students in development of

skills, knowledge, and attitudes vital for participation in active and healthy living

(Fishburne & Hickson, 2005)

PE Rating – participants rating of PE in comparison to Math, Science, English, French and Arts

School-Based Physical Activity (SBPA) – Physical activity within the school environment, but

outside of Physical Education class. Within this study, this variable consisted of school-based physical activity, since the beginning of the year, without a coach/instructor, with a coach/instructor, and physical activity through groups/lessons

Standard Deviation (SD) –numerical indicator of how widely dispersed the possible values are

around a mean (Gallagher & Andrew, 1997)

INTRODUCTION

Background

The Canadian education system is among the best in the world through an academic lens, yet physical activity (PA) levels among children and adolescents in Canada are suboptimal when compared to overweight trends in other countries across the world (Veugelers & Schwartz, 2010). Understanding the impact of the school environment is beneficial in creating a variety of health promotion strategies targeting students with a variety of health backgrounds. One way to encourage health promotion and develop healthy habits among students is through the opportunity of PA through Physical Education (PE) class. For students who do not participate in sport, or engage in PA outside of school, PE may play a crucial role in keeping them active

The Canadian Physical Activity Guidelines for adolescents as developed by the Canadian Society of Exercise Physiology (2012), suggest that being active for at least 60 minutes on a daily basis can help adolescents grow stronger, have fun playing with friends, feel happier, maintain a healthy body weight, improve self-confidence, and learn new skills. Additionally, adolescents who engage in PA, have less body fat (Nassis, Psarra, & Sidossis, 2005), less chance of cardiovascular disease (Andersen et al., 2006), higher self-esteem, greater social skills, less chance of engaging in health risk behaviours (Aaron et al., 1995), and higher academic achievement (Nelson & Gordon-Larsen, 2000; Coe, Pivarnik, Womack, Reeves, & Malina, 2006; Trudeau & Shephard, 2008; Public Health Ontario, 2010). Conversely, adolescents who succumb to physical inactivity (PI) are at a higher risk for obesity (Sallis & Patrick, 1994; Thomas, 2006), a variety of cardiovascular risk factors (Sallis & Patrick, 1994; Camhi, Phillips, & Young, 2010), and developing osteoporosis later in life (World Health Organization [WHO], 2004). Moreover, PI increases chances for 25+ chronic illnesses, including overweight and

obesity, and some cancers (Booth & Lees, 2007). To put this into perspective, in 2007 chronic illnesses were responsible for 75% of all deaths in Ontario (Active Healthy Kids Canada Report Card [AHKCRC] 2012). With a wide range of positive and negative consequences attributing to PA and PI, Canadians should understand the importance of increasing PA levels and shaping positive health behaviours.

The WHO (2012) considers adolescence as the time spent in individuals' lives between the ages of 10 and 19 years of age. "Adolescence is usually defined as the period of transition from childhood to adult status, a time ripe with possibilities to become a fully functional and capable individual" (Luke & Sinclair, 1991, p. 31). Moreover, a variety of opportunities and experiences influence one's lifelong attitudes during adolescence, thus establishing long lasting habits (Luke & Sinclair, 1991). In high school, adolescents are exposed to an array of new opportunities and are often granted more independence to make their own decisions and understanding their new sense of independence is important when targeting this population for health promotion reasons. It has been shown that engaging in PA throughout childhood and adolescence has a direct impact on positive PA behaviours during adulthood (Dietz; 1998; Moran, 1999; Janssen, Katzmarzyk, Boyce, King, Pickett, 2004). This emphasizes the importance of targeting adolescents and encouraging the development of positive health behaviours before they succumb to bad habits.

Physical Activity in Physical Education

To be "Physically Educated" has been outlined as the learning of skills and the allowance of participation across a variety of different physical activities (National Association for Sport and Physical Education [NASPE], 2004). Moreover, Fishburne and Hickson (2005) defined PA

as the expenditure of energy as a result of bodily movement and emphasizes the important role it plays in the PE curriculum by providing students with a chance to practice and improve a variety of motor skills. The main intention of PE courses in Canada is to assist students in shaping their health behaviours (Gibbons, 2009), by developing skills, and attitudes, vital for engaging an active lifestyle (Fishburne & Hickson, 2005). The potential to increase PA levels through PE identifies the school environment as a convenient place to promote healthy behaviours for adolescents (Wechsler, Devereaux, Davis & Collins, 2000; Biddle, Gorely & Stensel, 2004; Public Health Ontario, 2010). Moreover, school provides an inclusive environment for all students despite their family influences (Faulkner, Goodman, Adlaf, Irving, Allison, & Dwyer, 2007), socioeconomic status, gender, and race (Hannon, 2008) in a safe and controlled environment. PE class is a consistent opportunity for students to engage in moderate to vigorous PA (MVPA) (Faulkner et al., 2007), meet Canadian PA recommendations (Trudeau & Shephard, 2008), and increase PA levels in general (Hobin et al., 2010). Moreover, high school students who attend PE class regularly reported healthier eating behaviours (e.g. higher intake of fruit and vegetable, and lower intake of soda) and less time spent watching television during the week (Tassitano, Barros, Tenório, Bezerra, Florindo, & Reis, 2008).

The Health and Physical Education (HPE) curriculum, as provided by Ontario's Ministry of Education, was updated in 1999 (grade 9 and 10) and 2000 (grade 11 and 12). The curriculum outlines that HPE has been developed to facilitate learning opportunities for students to realize their potential in life (Ministry of Education, 2000). Three main goals that students will achieve are: (1) "understanding of importance of physical fitness, health and well-being and the factors that contribute to them"; (2) "a personal commitment to daily vigorous physical activity and positive health behaviours"; and (3) "the skills and knowledge they require to participate in

physical activities throughout their lives” (Ministry of Education, 2000, p. 2). More specifically, HPE courses are organized into four strands: physical activity, active living, healthy living, and living skills. Each of these strands is broken down further into subcategories, with some examples being: conflict resolution, decision making, healthy growth and sexuality, healthy eating, physical fitness, and sports and recreation. There is also an additional grade 11 PE class titled *Health for Life* which contains 3 strands: determinants of health, community health, and vitality. It should be noted that PE is the only course in which movement skills, healthy living, and active participation are fully emphasized, which suggests that it is a crucial part of each student’s high school experience. According to People for Education (2012), new curriculum will be implemented within the next few years in secondary schools which will cover mental health, sexual health, and physical fitness. Ontario’s revised HPE curriculum will focus on shaping students’ knowledge and skills about active and healthy living, and physical, social, and emotional health (People for Education, 2012); the main concern is not so much around the curriculum as it is around adolescent PA levels and student enrolment rates (People for Education, 2012).

Current Health Trends

Despite the good intentions of health advocates throughout Ontario and Canada, the trends representing adolescents’ activity levels and PE enrolment have not been promising. According to the Active Healthy Kids Canada Report Card (2012), Canada scored a C in PE, which suggests that majority of students are still not meeting 150 minutes of PA per week which is the goal of the HPE curriculum in Ontario. Research shows that only seven percent of Canadian youth are close to meeting the Canadian PA Guidelines of 60 minutes per day of

MVPA (Colley, Garriguet, Janssen, Craig, Clarke & Tremblay, 2011). As a potential result, the presence of overweight status among adolescents has risen in males (1999-2000=14%; 2003-2004=18.2%) and females (1999-2000=13.8%; 2003-2004=16.6%) (Hedley et al., 2004). Moreover, Nelson, Neumark-Szteiner, Hannan, Sirard, and Story (2006) found that time spent engaging in MVPA declined among females from early to mid-adolescence (5.9-4.9 hours/week) to mid- to late adolescence (5.1-3.5 hours/week). Results also showed that males did not significantly decline from early to mid-adolescence, but showed significant decline from mid- to late adolescence (6.5-5.1 hours/week); which provides more support for targeting this population. Additionally, the Canadian Fitness and Lifestyle Research Institute's (2012) CANPLAY study has shown a decline in the mean number of steps taken daily among Canadians between the ages of 15 and 19 from 2005 (9797 steps) to 2011 (9586 steps). As previously mentioned, PE is one way for students to engage in PA and shape long lasting health habits, but research suggests that a large amount of students do not show interest in PE enrolment (Dwyer et al., 2006; Faulkner et al., 2007; Hobin et al., 2010)

In Ontario, high school students only require a grade nine PE credit, whereas in 2008 Manitoba government mandated PE for four years in Manitoba at 110 hours per credit in high school. Moreover, PE is also mandated for four years in Quebec at 150 minutes per week; thus students receive every 2 to 3 days on a 9 day cycle. In New Brunswick, PE is mandated at 74-135 minutes per week over two years (grade 9 and 10). Lastly, PE is not compulsory in PEI, and for one credit in the remaining provinces and territories, including Ontario (Physical & Health Education Canada, 2012). Faulkner and colleagues (2007) showed an overall decline in PE enrolment for each grade in an Ontario sample of high school students (n=13, 260) from 1999 to 2005 (Table 1). When comparing enrolment rate between the genders, males were consistently

enrolling in PE more often than females but it should be noted that both genders show a linear decline in enrolment from 1999 to 2005. Similarly, research on PE enrolment among a sample of high school students in Ontario (n=24, 303) revealed that PE enrolment was 62.4% with more males enrolled than females, and more students in lower grades enrolled than students in higher grades (Hobin et al., 2010) (Table 1).

Table 1

PE enrolment rates in Ontario: 1999-2006

| Faulkner et al. (2007) | | | | | | Hobin et al.(2010) |
|------------------------|------|------|------|------|-----------|--------------------|
| Year | 1999 | 2001 | 2003 | 2005 | 1999-2005 | 2005-2006 |
| | % | % | % | % | % | % |
| Sex | | | | | | |
| Males | 72.3 | 69.8 | 71.8 | 65.2 | 69.2 | 67.0 |
| Females | 68.2 | 55.7 | 68.7 | 55.7 | 62.4 | 57.5 |
| Grade | | | | | | |
| 9 | 81.5 | 71.5 | 78.8 | 70.6 | 75.4 | 73.4 |
| 10 | 71.7 | 64.0 | 67.8 | 57.8 | 64.3 | 63.2 |
| 11 | 65.1 | 56.1 | 67.5 | 60.2 | 63.1 | 58.7 |
| 12 | 58.1 | 53.6 | 66.4 | 54.5 | 59.2 | 51.3 |
| Total | 70.3 | 63.1 | 70.2 | 60.3 | | 62.4 |

Dwyer and colleagues (2006) analyzed data from 474 questionnaires completed by key informants at high schools in Ontario regarding PE participation among other PA opportunities. Analysis showed that majority of students who are enrolled in PE met the recommended MVPA of 150 minutes per week HPE curriculum (77.7%-86.6%); which further identifies the school as an effective environment for PA. The informants also identified funding, academic interference in the students' timetables, and resources made it more challenging to implement adequate amounts of MVPA as recommended in the Ministry of Ontario's HPE curriculum.

The AHKCRC (2012) uncovered the same trend when observing PE enrolment rates of junior and senior students (grade 9-10=84%, grade 11-12=57%) through the *Opportunities for Physical Activity at School Survey* which was conducted in 2011. Promoting PA is not a new trend; health advocates have been pushing for an increase in PA for many years now (Janssen, 2007). As of 2002, adolescents were recommended to increase their PA time by 30 minutes per day (Janssen, 2007). With PA levels declining since then, Canadians should have an idea of the improvements that need to be made among adolescents' PA levels. Moreover, there is clearly a disconnection between adolescents and PE and understanding some barriers that deter students from enrolling may assist in shaping successful PE classes.

Barriers and Preferences of PE Enrolment

The few studies that have observed adolescents' attitudes toward PE uncovered similarities and differences across the genders. Luke and Sinclair (1991) found that both males and females negatively viewed long bouts of running, fitness testing, and coeducational classes. Also, when students believed their class promoted competition with much attention given to making mistakes, they were less likely to enjoy class, have fun (Ferrer-Caja & Weiss, 2000) and thus less likely to enrol in the future. Some males disliked PE because they felt they were unfit, unhealthy, and could not keep up with the class (Luke & Sinclair, 1991). Moreover, females felt embarrassed, self-conscious, pressured, and began disliking gym when they started being evaluated by their athletic ability (van Daalen, 2005). With some understanding of PE preferences and barriers, administration and educators should seek out a variety of health related tools when shaping PE classes that will be inviting for a variety of students. However, more research should be done to determine what educators should avoid when shaping classes.

Moreover, there are some trends of successful PE classes that should be given consideration when designing and developing PE classes.

Although adolescents' PA levels and PE enrolment is on the decline, there are some themes present among successful PE classes that deserve attention. Gibbons (2009) identified six themes of importance to a successful PE class. The themes included: focus on lifetime PA, value-added options, student involvement in course development, gender as a course design, authentic assessment, and positive and respectful class environment. These themes emphasized promoting activities that will be maintained throughout a lifetime, receiving external certification (e.g., CPR), and providing students with a sense of ownership of their learning. Moreover, suggestions were made to design courses to specific populations to meet the needs of a wide range of students, assessing students on tasks that would be performed in real world settings, and emphasizing the importance of a safe and healthy learning environment. Some females emphasized not feeling embarrassed or worrying about being ignored due to lack of ability as what they enjoyed the most about PE.

Moreover, Standage, Duda, and Ntoumanis (2003) found that when students feel that their success is attainable through hard work and an interest in learning, they feel more invested in the PE class as they understand that they have control of their achievement. Ferrer-Caja & Weiss (2000) also found that students enjoyed class, had fun, wanted to attend, exerted more effort, and continued to engage in class if they felt their PE class promoted participation and learning.

With fewer students enrolling in PE after grade nine, there is a variety of health topics covered in the HPE curriculum between grades 10 and 12 that students are missing. More specifically these topics include: healthy eating (grade 10), mental health (Healthy Living: grade

11 & grade 12), stress management (Healthy Living: grade 11), determinants and community health, and vitality (Health for Life: grade 11). These are topics that could be considered of great importance in adolescence when students are very impressionable and health behaviours can be easily influenced (Dietz, 1998). Yet educators continue to face the challenge of offering PE classes that entice students to enroll (Gibbons, 2009). Results on successful trends (Luke & Sinclair, 1991; Ferrer-Caja & Weiss, 2000; Standage et al., 2003; Gibbons, 2009) provide researchers and educators with beneficial evidence that PE classes can be developed to entice students to enroll. For more information on Canadian adolescents' current health and PE enrolment trends see Appendix A.

There is not a written formula to solve the current health trends and PE enrolment decline among adolescents, but there is wide variety of possibilities including the aforementioned traits of successful PE classes. The current HPE curriculum (Ministry of Education, 2000) is rather flexible which suggests educators can provide a variety of options to meet the curriculum standards. Educators, administration, and all persons involved in providing students with education, play an important role in shaping lifelong health behaviours, especially pertaining to PA (Ferrer-Caja & Weiss, 2000). It is not enough to simply offer PE as a credit; PE should be glorified as an opportunity for all students to get active and learn the importance of shaping lifelong health habits. Moreover, Ferrer-Caja & Weiss (2000) suggests the entire school should embrace healthy school initiatives to facilitate a healthy living environment. Given the lack of consistency in the current literature in terms of distinguishing a relationship between adolescents' perspectives on PE and PA levels, this topic should be explored more deeply. It is important to gain insight on adolescents' perspectives on PE, understanding what adolescents'

like and dislike about PE, and uncovering what adolescents' know in regards to the benefits of PA through PE.

Thus, the purpose of this study was multi-dimensional and consisted of various components: 1) to identify adolescents' rating of PE among other subjects and identify it as a predictor of PA levels (Non-School-Based PA and School-Based PA) and health variables (BMI and "I like the way I look") two years later; 2) to identify the relationship of C7 Non-School-Based PA with C8 Non-School-Based PA and additional health variables (Health Status, BMI, & "I like the way I look") two years later; 3) to identify changes in health variables (Non-School-Based PA, Health Status, BMI, "I like the way I look") after a two year period; and, 4) to gain insight on adolescents' perspectives of PE through an understanding of their likes, dislikes, and other factors that may influence their opinion.

METHODOLOGY

This study consisted of a mixed methodology which has been broken down into two parts. Part 1 addressed objectives 1 through 3 through the quantitative analyses of data from the National Longitudinal Survey of Children and Youth (NLSCY). Part 2 addressed objective 4 through qualitative analyses of focus groups conducted at high schools within Windsor-Essex County. Using a mixed methodology approach by combining quantitative and qualitative analyses has been considered to provide a result that can be more easily adapted and may have a more comprehensive message (Johnson & Onwuegbuzie, 2004) and provide a more complete understanding of the topic. Using a convergent parallel design (Creswell & Clark, 2007), both quantitative and qualitative components were of equal importance and analyzed independently. The two sets of results were compared and synthesized into a conclusion as per suggestions on mixed methodology (Creswell & Clark, 2007); thus illuminating the connection between the analyses. As described by Creswell and Clark (2007), the convergent design guides researchers to obtain different results that are complementary to each other to give a full understanding of the research topic (Morse, 1991) by joining strengths and differing weaknesses between qualitative and quantitative methods. (Patton, 1990). Ethics approval from the University of Windsor was obtained, and participant consent and parental consent were obtained for Part 2 of this study.

Part 1

Participants

Since the NLSCY is a longitudinal survey, two cycles (Cycle 7 [2006-2007], Cycle 8 [2008-2009]) were used to identify relationships between variables. The participants of interest

from Cycle 7 (C7) were Canadian adolescents between the ages of 12 and 15 years, ($M=13.64$ years, $SD=1.15$), and correspondingly the participants from Cycle 8 (C8) were the same Canadian adolescents between the ages of 14 and 17 years ($M=15.72$ years, $SD=1.16$). Two participants were removed from the sample in C8 because they moved from Canada, which made our overall sample size 4,963. The participants were split between males (51.6%) and females (48.4%), and represented ten of Canada's provinces. Since Statistics Canada did not ask the same questions of all participants, the number of participants used for the analyses ranged from 1,713 to 4,182.

Instrument

The NLSCY is a longitudinal study that was conducted by Statistics Canada and sponsored by Human Resources and Skills Development Canada (Statistics Canada, 2009). The primary objective of this survey was to observe the development and well-being of Canada's children and adolescents from infancy to adulthood. Data from Cycle 1 was collected in 1994 and 1995, and data has been collected every two years since that time. In Cycle 1 the age of respondents ranged from 0 to 11 years (Statistics Canada, 2009) (Figure 1).

The survey continued to add a new sample at each cycle to monitor early childhood development. The participants in the NLSCY were selected from households that were already being sampled by Statistics Canada's Labour Force Survey (LFS). The LFS collected data from over 52,000 dwellings in Canada, which represents non-institutionalized civilians 15 years of age and older in Canada's 10 provinces. The NLSCY gathered self-reported data on factors influencing a child's social, emotional, and behavioural development and to monitor the impact of these factors on a child's development over time. Objectives of the NLSCY included:

determining the prevalence of risk and protective factors; understanding how these factors and life events influence development; making this information available for policy and program development; collecting information on a wide range of topics; and collecting information about the environment in which a child is raised (Statistics Canada, 2009).

Data were derived through a self-completed paper questionnaire of participants between the ages of 12 and 17 years across Canada. These questionnaires were given during a household interview with a Statistics Canada representative who had worked on one or more cycles of the NLSCY. The questionnaire was self-completed, sealed in an envelope to ensure confidentiality, and returned to the interviewer (Statistics Canada, 2009). Variables of interest were observed from the following topics: school, about me, activities, and health. Data from C7 and C8 are not available on a public use micro data file, and approval from Statistics Canada was obtained.

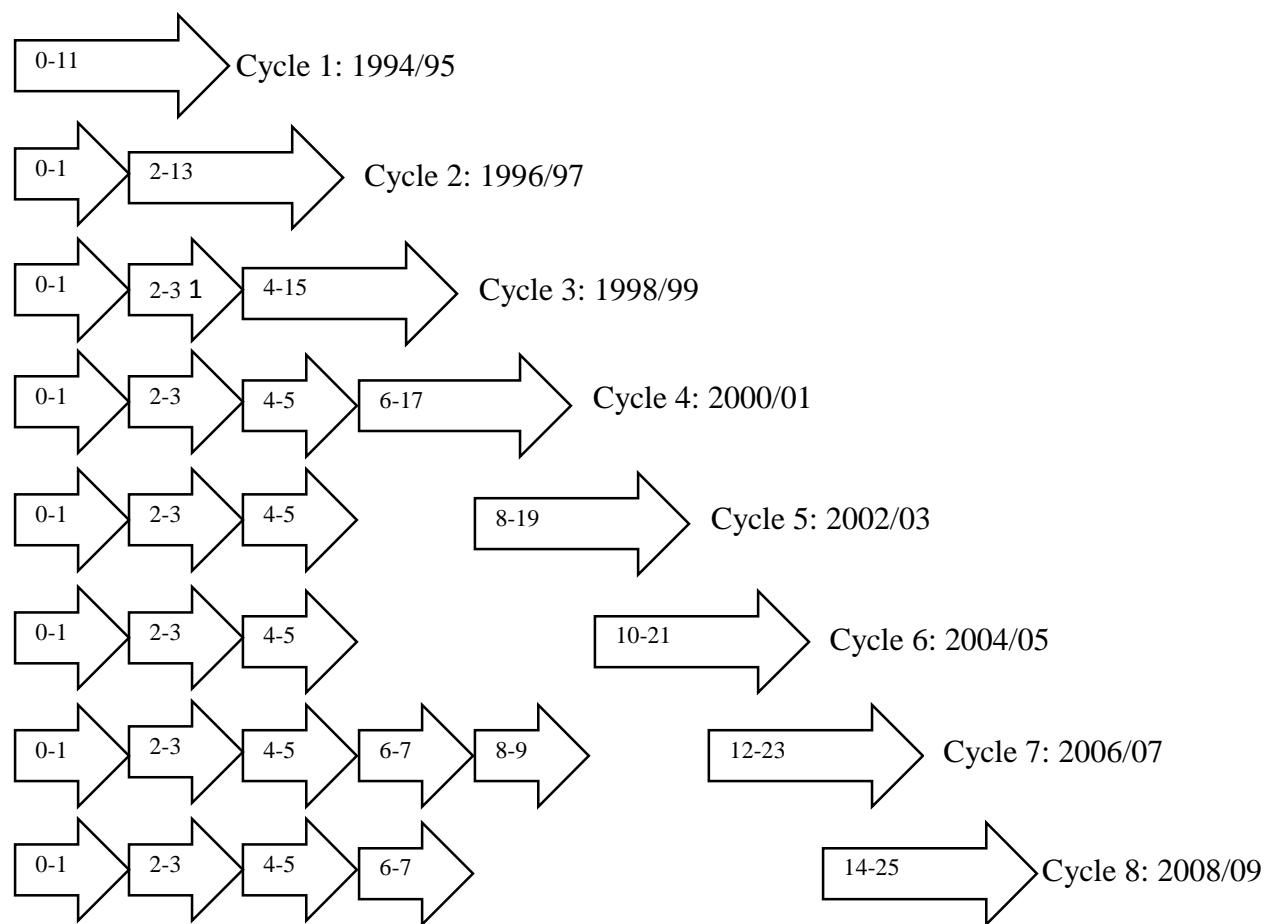


Figure 1

Age of children at each cycle, original cohort versus early childhood development cohorts

Notes: ages of children in years are shown in arrows. Longer arrows represent the original cohort and shorter arrows represent the early childhood development cohorts (Statistics Canada, 2009).

Variables of Interest

Predictor Variables

A predictor variable was constructed from a series of questions asking students to rate Math, Science, English, French, PE, and Arts. The question asked “How do you like the following subjects: Math, English, French, Science, PE, Arts? Participants chose one of five answers (I hate it, I don’t like it very much, I like it a little, I like it a lot, I don’t take it). Since very few participants responded with “I don’t take it”, this answer was omitted for analysis purposes. To construct the predictor variable from students’ rankings of PE when compared to other subjects, the overall average of the means for students’ rating of Math, Science, English, French, and Arts was calculated. This value was then subtracted from the mean rating of PE. The difference between these means represented participants’ preference for PE over the mean rating of other subjects, or participants’ preference of other subjects over PE. The lowest score a participant could have was -3.0 which indicated their mean ranking of other subjects was a 4 (“I like it a lot”) and their PE ranking was a 1 (“I hate it”). In contrast, the highest score a participant could have was 3.0 which indicated their mean ranking of other subjects was a 1 and their PE ranking was a 4. Upon reviewing the range, these scores were collapsed into three categories: 1) prefers other subjects over PE, 2) tie between PE and other subjects, and 3) prefers PE over other subjects. Participants who scored ≤ -1.0 were coded with a 1, participants who scored a 0 were coded with a 2, and participants who scored ≥ 1.0 were coded with a 3. This recoding was chosen so all negative scores were in one category, zeroes in a second category, and all positive scores in a third category. This recoding was successful because there were no scores that fell between -1.0 and 0, or 0 and 1.0 . Moreover, the rating of PE in relation to other subjects was computed into a new variable and used as a predictor variable for multiple regression analyses.

Outcome Variables

Many variables were collapsed and/or recoded for data analysis ease and clarity. Three variables pertaining to PA during the past 12 months outside of school were collapsed into one overall Non-School-Based PA (NSBPA) variable for each cycle (Table 2) and used as a predictor variable for multiple regression analyses with variables from C7 and C8. Five health behaviours and outcomes from C7 and C8 were examined as dependent variables: NSBPA, School-Based PA (SBPA), BMI, “I like the way I look” and Health Status (Table 2). Each of these variables was analyzed as outcome variables dependent on the predictor variable used in multiple regression analyses (Table 3). The BMI variable was a health derived variable that Statistics Canada calculated through the self-report of each participant’s height and weight through the use of the Cole Method as proposed by Cole and colleagues (Statistics Canada, 2009). The cut-offs used in this method are age and sex specific and are cut-off in half-year intervals (2-18 years old) based on literature from six datasets representing youth throughout the world (Cole, Bellizzi, Flegal, & Dietz, 2000).

Table 2

NLSCY Variables of interest: scoring and coding

| Predictor/Outcome Variables | Scoring | Coding |
|---|---|--------|
| How do you like the following subjects? Math | I hate it | 1 |
| How do you like the following subjects? Science | I don't like it | 2 |
| How do you like the following subjects? English | I like it a little | 3 |
| How do you like the following subjects? French | I like it a lot | 4 |
| How do you like the following subjects? Gym/PE | I don't take it | 5 |
| How do you like the following subjects? Arts | Valid skip | 6 |
| | Not stated | 9 |
| PE relative to other subjects | Preferred other subjects over PE | 1 |
| | Tie between PE and other subjects | 2 |
| | Preferred PE over other subjects | 3 |
| SBPA 1) Since the beginning of the school year, how often have you taken part in the following school-based activities (other than in class): Played sports or done physical activities without a coach or an instructor (e.g., softball at lunch)? | Never | 1 |
| | Less than once a week | 2 |
| | 1-3 times a week | 3 |
| | 4 or more times a week | 4 |
| | Valid skip | 6 |
| | Not stated | 9 |
| SBPA 2) Since the beginning of the school year, how often have you taken part in the following school-based activities (other than in class): Played sports with a coach or an instructor other than for gym class (e.g., school teams)? | | |
| SBPA 3) Since the beginning of the school year, how often have you taken part in the following school-based activities (other than in class): Taken part in dance, gymnastics, karate or other groups or lessons, other than in gym class? | | |
| Overall SBPA | Accumulated score of three SBPA variables | 3-12 |
| NSBPA 1) Outside of school, during the past 12 months, how often have you played sports or done physical activities without a coach or instructor (biking, skateboarding, etc.)? | Never | 1 |
| | Less than once a week | 2 |
| | 1-3 times a week | 3 |
| | 4 or more times a week | 4 |
| | Valid skip | 6 |
| | Not stated | 9 |
| NSBPA 2) Outside of school, during the past 12 months, how often have you played sports with a coach or instructor (swimming lessons, baseball, hockey, etc.)? | | |
| NSBPA 3) Outside of school, during the past 12 months, how often have you taken part in dance, gymnastics, karate or other groups or lessons (always organized outside of school)? | | |

| | | |
|---|--|-----------------------|
| Overall NSBPA | Accumulated score of three NSBPA | 3-12 |
| In general, would you say your health is: | Poor Fair Good Very good Excellent | 1 2 3 4 5 |
| Body Mass Index | Normal weight Overweight Obese | 1 2 3 |
| I like the way I look | False Mostly false Sometimes false/sometimes true Mostly true True | 1 2 3 4 5 |
| Control Variables | | |
| Province | | |
| Gender | | |

Table 3

Predictor and outcome variables for multiple regression analysis

| Predictor Variables | Outcome Variables |
|---------------------|--|
| PE Rating | C8 NSBPA C8 SBPA C8 BMI C8 “I like the way I look” |
| C7 NSBPA | C8 NSBPA C8 Health Status C8 BMI C8 “I like the way I look” |

Data Analysis

Cases were not analyzed if the answer was any of the following options: “I don’t know”, “valid skip”, and “not stated”. “I don’t know” indicated that the participant may not know the answer; “valid skip” indicated that the question may not have been relevant to the participant; and “not stated” indicated that the question was not answered by the participant. These cases were considered “missing” during statistical analyses. Prior to all statistical analysis tests the C8 longitudinal (non-funnel) weight was applied. This weight was chosen as it applied to participants who had responded to the most recent cycles of the NLSCY, but not necessarily all the previous ones (Statistics Canada, 2009). Moreover, since most responses ranged from the most negative answer to the most positive answer, the question “In general, would you say your health is: excellent, very good, good, fair, poor” was reverse coded for analysis purposes (Table 4).

Multiple regression analyses were used to determine whether participants’ C7 PE Rating predicted NSBPA, SBPA, BMI, and the “I like the way I look” variable from C8. Multiple regression analyses were also used to determine whether participants’ C7 NSBPA levels predicted NSBPA, Health Status, BMI, and the “I like the way I look” variable in C8. For all

multiple regression analyses the standardized coefficient, Beta (), value was analyzed to indicate how many standard deviations the outcome variables changed when the predictor variable increased by one standard deviation; this value is also representative of the effect size. A p-value greater than .05 was used to determine significance of a relationship. Lastly, the demographic variables of province and gender were re-coded into dummy variables to act as controls for all multiple regression analyses.

To determine a change in health behaviours after a two year span, the Wilcoxon signed-rank test was used to compare answers from C7 to answers in C8. The variables of interest include: NSBPA, Health Status, “I like the way I look”, and BMI. For these tests, effect sizes (r) were calculated to determine the power of the relationship. This was done by dividing the Z-value from the square root of N (Cohen, 1988). SBPA was not analyzed because there were too many missing cases, as the SBPA questions were not asked of the same participants in C8.

IBM Statistics Package for the Social Sciences (SPSS) 20 was used for all data analysis.

Part 2

Participants

A total of 32 male ($n=13$) and female ($n=19$) high school students between the ages of 14 and 19 ($M=15.63$, $SD=1.72$) participated in Part 2 of this study. The focus groups consisted of 7 to 9 students, and were separated into grade 9 ($n=2$ focus groups) and grade 11/12 ($n=2$ focus groups) to account for homogeneity. All students had enrolled in high school PE at least once and presented a wide range of PE preferences. Participants were recruited from high schools within the Greater Essex County District School Board and the Windsor-Essex Catholic District School Board. Participants were randomly selected on a volunteer basis through the school's principals

and PE Departments. The participants represented a good range of students based on various interests. Letters of consent were received from both school boards prior to recruitment, signed consent forms from the participants' parent/guardian were returned before participation, and the participants were compensated with a Kinesiology bag, water bottle, and t-shirt upon completion of each focus group.

Procedure

Focus groups were moderated by the researcher, assisted by a colleague, and were approximately 75 minutes in length. Basic information obtained from each participant included: age, gender, grade level, whether they are enrolled in PE in the current school year, and their history of PE enrolment throughout high school. Table 4 shows the percentage of grade 12s enrolled in each grade from the beginning of high school; since all junior participants were in grade 9 displaying this information would not be relevant. The project goal was to gain insight on PE from adolescents' perspectives through understanding what students specifically like and/or dislike about PE. A semi-structured question guide (Appendix B) was prepared by the researcher after a thorough review of the literature and meetings between the researcher and members of the local school board. Audio-taping and verbatim transcriptions were used to ensure accuracy.

Table 4

Percentage of PE Enrolment across Senior Participants

| | Percentage of Enrolment | | | |
|-----------------------|-------------------------|----------|----------|----------|
| | Grade 9 | Grade 10 | Grade 11 | Grade 12 |
| Grade 12 Participants | 93% | 73% | 53% | 47% |

Each focus group began with an introduction by the researcher outlining the purpose of the study, how the session would flow, and the participants' option to leave or pass any questions. Also, storytelling and speaking on a friend's behalf was encouraged as long as the participant omitted the person's name. The researcher first asked participants to go around the group and give their name, grade, and favourite thing to do outside of school. As per suggestions through the literature, the focus group questions followed a moderate structure of the funnel design by beginning with broad questions that introduced the topic of PE and finishing with narrow questions regarding the specific purpose of the study (Kruger, 1998a). Each focus group began with less structured questions that introduced the topic of PE and as the focus group progressed, the questions became more specific and were more narrowly focused as suggested by Kruger (1998a). Approximately halfway through the focus group, participants were given a blank sheet of paper and asked to list two items they like and two items they dislike about PE. This activity was done to provide each participant an opportunity to participate and to commit to their answer without being influenced by what others were saying. The researcher collected these sheets of paper and the items were anonymously combined into one list on chart paper within viewing distance for all participants. Participants were given an inventory sheet (Appendix C) that already included a list of potential likes and dislikes generated by the researcher after consulting the literature and members of the local school boards. The participants were asked to copy the items from the chart paper onto their inventory sheets and were then given instruction to think "Is this something that really influences my Physical Education experience?" The participant then ranked this item from 1 to 5 (1=strongly disagree, 2=somewhat agree, 3=neutral, 4=somewhat agree, 5=strongly agree). The focus group finished with the distribution of an anonymous evaluation form where students were asked to comment on the focus group

experience and were given an opportunity to make comment on anything they did not get a chance to say (Appendix D). All focus group questions and techniques were based on examples provided through a focus group kit (Kruger, 1998a).

The overall risk and group vulnerability was low as participants had agreed to be part of the focus group. Although data was not confidential within the focus group, the data remained confidential across the focus groups, and it was emphasized that no answers will be attributed to a particular participant. At the beginning of the focus group, participants were informed of their right to withdraw from the study at any time without consequences of any kind. They were also informed of their right to refuse to answer any questions they did not want to answer and still remain in the study.

Data Analysis

First, the audio recordings of each focus group were transcribed verbatim for analysis purposes. Following previous work (Tesch, 1990; Kruger, 1998) the interviews were separated into meaning units that highlighted relevant information from the focus group session. This procedure was done both within each focus group, and across the different focus groups (Maykut & Morhouse, 1994). Broad based trends and themes were identified and information was organized into smaller thematic categories, which allowed common features among the meaning units to be determined. This constant comparative method was used to compare and organize data until no new categories could be formed (Glaser & Strauss, 1967). Some categories were combined to strengthen data groupings and the importance of each category was considered based on the project goals. Lastly, the categories were compared across the genders to determine any commonalities and/or differences. The data was then interpreted by describing what has been

learned from the findings. Consideration was given to main points and information that is most useful for promoting health behaviours among adolescents.

RESULTS

Part 1

The means and standard deviations were identified through a frequencies measure of predictor and outcome variables. Means, standard deviations, and skewness scores were examined to provide general information regarding the variables of interest (Table 5). All skewness values fell between -2 to +2 which indicated normal distributions (Lewis-Beck, Bryman & Liao, 2004). PE Rating did not have a mean or standard deviation for C8 as it was not asked of the participants in that cycle. Province and gender were controlled for throughout the following multiple regression analyses and the dummy variables: Ontario and males were omitted from predictor variables. This does not infer that participants from Ontario and males were not analyzed, but rather when results were computed in relation to the province variables they were in comparison to Ontario, and when results were computed in relation to the female variable they were in comparison to males.

Table 5

Means (M) and standard deviations (SD) for predictor and outcome variables

| Variables | M | SD | Skewness |
|----------------------------|------|------|----------|
| Predictor | | | |
| C7 PE Rating | 2.61 | .76 | -1.54 |
| C7 NSBPA | 7.92 | 2.21 | -.12 |
| Outcome | | | |
| C8 NSBPA | 6.87 | 2.22 | -.03 |
| C8 SBPA | 5.95 | 1.06 | .36 |
| C8 Health Rating | 4.10 | .89 | -.792 |
| C8 BMI | 1.29 | .55 | 1.76 |
| C8 "I like the way I look" | 3.86 | 1.01 | -.73 |

Notes: See variables of interest (Table 2) for variable coding

PE Rating

How do adolescents rate PE?

On average, when the PE Rating variable ($\underline{M}=2.61$, $SD=.76$) was constructed, frequencies showed that among participants, 17.0% preferred other subjects over PE, 4.9% were tied between other subjects and PE, and 78.1% preferred PE over other subjects (Figure 2). Furthermore, multiple regression analysis indicated province and gender explained a significant proportion of variance in PE Rating. Females ($\underline{M}=2.47$, $SD=.853$) rated PE lower when compared to males ($\underline{M}=2.75$, $SD=.626$), and Quebec and Manitoba rated PE lower than Ontario [$R^2 = 0.55$. $F(10, 4182) = 24.265$, $p < .05$] (Table 6).

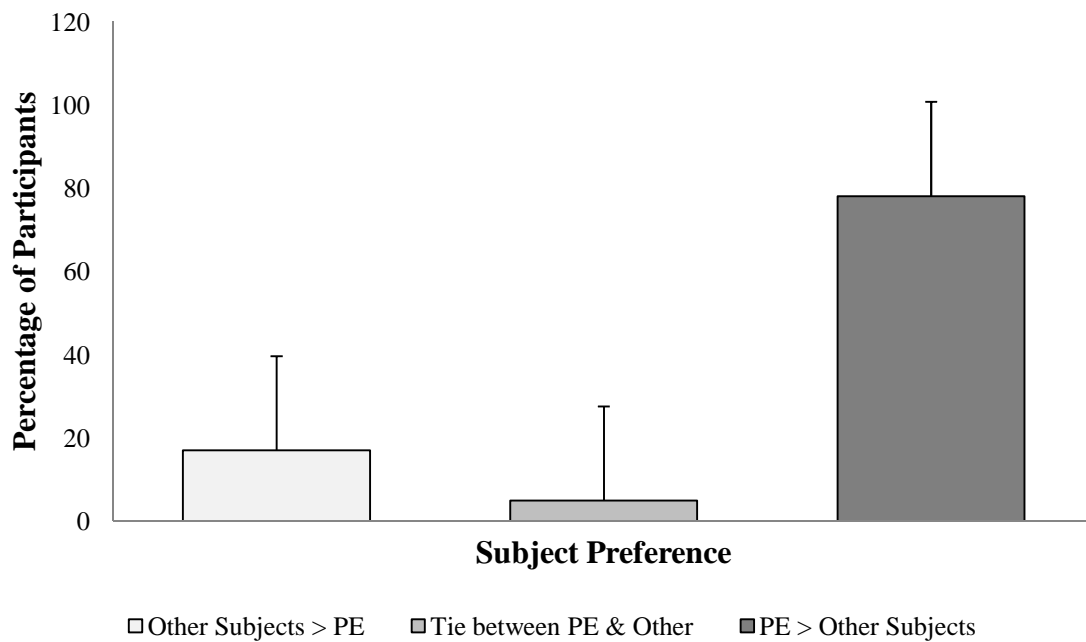


Figure 2

Distribution of subject preference between PE and other subjects with standard error bars

Table 6

Province and Gender as Predictors for PE Rating

| Predictor | Outcome | |
|----------------------|--------------|---------|
| | C7 PE Rating | |
| | Beta () | Sig (p) |
| Province | | |
| Newfoundland | -.016 | .305 |
| Prince Edward Island | .014 | .351 |
| Nova Scotia | .004 | .802 |
| New Brunswick | -.016 | .301 |
| Quebec | -.069 | .000* |
| Manitoba | -.034 | .030* |
| Saskatchewan | .001 | .933 |
| Alberta | -.011 | .490 |
| British Columbia | .004 | .783 |
| Gender | | |
| Female | -.221 | .000* |

*Statistical significance

Does PE Rating predict PA and health variables?

Multiple regression analyses showed that PE Rating significantly predicted NSBPA [$R^2=.019$, $F(11,1762)=3.165$, $p<.05$] and SBPA [$R^2=.048$, $F(11,2082)=9.582$, $p<.05$] in C8 (Table 7). If participants preferred PE over other subjects they reported a higher frequency of PA per week. PE Rating also significantly predicted BMI [$R^2=.018$, $F(11,3331)=5.441$, $p<.05$] and the “I like the way I look” variable [$R^2=.041$, $F(11,3528)=13.827$, $p<.05$] in C8 (Table 8). This indicated that if participants preferred PE over other subjects they were more likely to have a lower BMI and rated themselves more favourably.

Control Variables

PE Rating predicted lower NSBPA scores for Quebec and British Columbia as compared to Ontario (Table 7). This indicates that there were lower frequencies of NSBPA per week for participants from Quebec and British Columbia. PE Rating also predicted a higher BMI score for Nova Scotia when compared to Ontario. PE Rating also predicted a significant difference between gender for SBPA, BMI, and the “I like the way I look” variable (Table 7 & 8). Females had lower frequencies of SBPA per week, reported less favourable scores for the “I like the way I look” variable, but lower BMI scores.

Table 7

PE Rating Predicting NSBPA and SBPA

| Control | Outcome | | | |
|----------------------|---------------------------------------|---------|-----------------------------------|---------|
| | C8 Non-School-Based Physical Activity | | C8 School-Based Physical Activity | |
| | Beta () | Sig (p) | Beta () | Sig (p) |
| Province | | | | |
| Newfoundland | -.022 | .360 | -.018 | .452 |
| Prince Edward Island | -.002 | .922 | .008 | .742 |
| Nova Scotia | -.038 | .118 | -.039 | .096 |
| New Brunswick | .000 | .998 | .006 | .811 |
| Quebec | -.085 | .001* | -.035 | .177 |
| Manitoba | -.009 | .700 | .012 | .604 |
| Saskatchewan | -.031 | .206 | .017 | .480 |
| Alberta | -.021 | .399 | .012 | .622 |
| British Columbia | -.070 | .005* | -.023 | .349 |
| Gender | | | | |
| Female | -.038 | .116 | -.116 | .000* |
| Predictor | | | | |
| PE Rating | .083 | .001* | .143 | .000* |

*Statistical significance

Table 8

C7 PE Rating Predicting BMI and “I like the way I look”

| Control | Outcome | | | |
|----------------------|----------|---------|----------------------------|---------|
| | C8 BMI | | C8 “I like the way I look” | |
| | Beta () | Sig (p) | Beta () | Sig (p) |
| Province | | | | |
| Newfoundland | -.017 | .317 | -.004 | .818 |
| Prince Edward Island | -.015 | .379 | .007 | .653 |
| Nova Scotia | -.044 | .013* | -.030 | .077 |
| New Brunswick | -.018 | .291 | .022 | .184 |
| Quebec | -.015 | .420 | -.023 | .205 |
| Manitoba | -.031 | .075 | .025 | .142 |
| Saskatchewan | .005 | .774 | .004 | .806 |
| Alberta | -.001 | .970 | .024 | .166 |
| British Columbia | -.008 | .655 | .025 | .146 |
| Gender | | | | |
| Female | .115 | .000* | -.172 | .000* |
| Predictor | | | | |
| PE Rating | .063 | .000* | .056 | .001* |

*Statistical significance

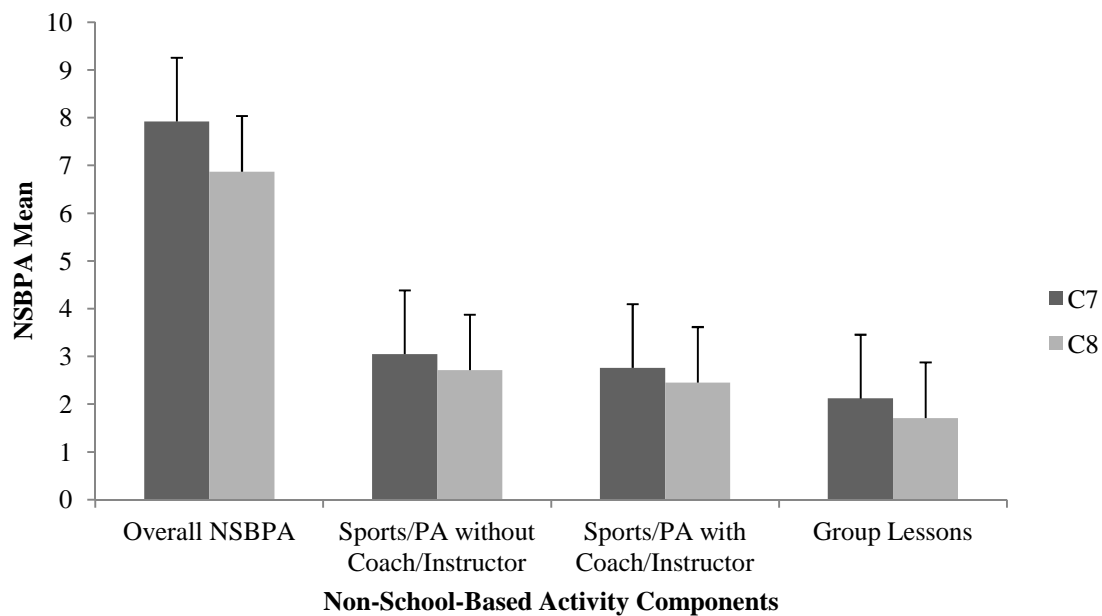
C7 NSBPA

Frequencies showed that overall mean NSBPA decreased from C7 to C8 and when the NSBPA variable was deconstructed, the mean for each NSBPA variable also decreased from C7 to C8 indicating that it was not a single variable that was responsible for the overall mean decrease (Table 9). Figure 3 displays the decline in means over the two year period between C7 and C8. This is of interest when considering the impact of NSBPA as a predictor for outcome variables in C8.

Table 9

Means and Standard Deviations for NSBPA

| Variables | C7 | | C8 | |
|---|------|------|------|------|
| | M | SD | M | SD |
| Overall Non-School-Based Physical Activity (during the past 12 months) | 7.92 | 2.21 | 6.87 | 2.22 |
| Sports or PA without a coach or instructor (e.g., biking, skateboarding, etc.) | 3.05 | .90 | 2.71 | .97 |
| Sports or PA with a coach (swimming lessons, baseball, hockey, etc.) | 2.76 | 1.1 | 2.45 | 1.16 |
| Taken part in dance, gymnastics, karate or other group lessons | 2.12 | 1.1 | 1.71 | .97 |

**Figure 3**

Means for NSBPA with standard error bars

Does C7 NSBPA predict C8 NSBPA and health variables?

Multiple regression analyses identified C7 NSBPA as a significant predictor for C8 NSBPA [$R^2=.213$, $F(11,1792)=44.154$, $p<.05$], Health Status [$R^2=.066$, $F(11,1820)=11.689$, $p<.05$], BMI [$R^2=.038$, $F(11,1702)=6.169$, $p<.05$], and the “I like the way I look” variable [$R^2=.062$, $F(11,1828)=10.992$, $p<.05$]. This indicates that C7 NSBPA explains a significant proportion of variance in C8 NSBPA (Table 10) and that C8 NSBPA is strongly and positively associated. Thus, if participants reported higher frequencies of NSBPA per week in C7 they were more likely to report higher frequencies of NSBPA per week two years later in C8. It should be noted that this was the strongest and most positive relationship through the multiple regression analyses, identifying it as an important relationship.

Multiple regression analyses showed that C7 NSBPA significantly predicted Health Status, BMI, and the “I like the way I look” variable. This indicates that participants who reported higher frequencies of NSBPA per week in C7 reported a higher Health Status, a lower BMI, and a more favourable rating for the “I like the way I look” variable in C8 (Table 11).

Control Variables

C7 NSBPA predicted lower Health Status and “I like the way I look” scores for participants from Nova Scotia, higher BMI scores for participants from Manitoba, and lower “I like the way I look” scores for participants from Quebec, Saskatchewan, Alberta, and British Columbia, when compared to participants from Ontario (Table 10 & 11).

C7 NSBPA predicted lower scores for C8 NSBPA, Health Status, and “I like the way I look” when compared to males. This indicates that females had lower frequencies of C8 NSBPA per week, lower scores for Health Status, and less favourable scores for the “I like the way I

look” variable, but in contrast, C7 NSBPA predicted lower BMIs when compared to males (Table 11).

Table 10

C7 NSBPA predicting NSBPA and Health Status

| Control | Outcome | | | |
|----------------------|---------------------------------------|---------|------------------|---------|
| | C8 Non-School-Based Physical Activity | | C8 Health Status | |
| | Beta () | Sig (p) | Beta () | Sig (p) |
| Province | | | | |
| Newfoundland | -.013 | .546 | -.028 | .229 |
| Prince Edward Island | .007 | .739 | .006 | .788 |
| Nova Scotia | -.033 | .128 | -.054 | .019* |
| New Brunswick | -.015 | .479 | -.035 | .131 |
| Quebec | -.027 | .253 | -.025 | .314 |
| Manitoba | .005 | .830 | -.034 | .141 |
| Saskatchewan | -.026 | .235 | .001 | .969 |
| Alberta | -.027 | .230 | -.002 | .939 |
| British Columbia | -.042 | .061 | -.045 | .065 |
| Gender | | | | |
| Female | -.077 | .000* | -.177 | .000* |
| Predictor | | | | |
| C7 NSBPA | .454 | .000* | .176 | .000* |

*Statistical significance

Table 11

C7 NSBPA predicting BMI and “I like the way I look”

| Control | Outcome | | | |
|----------------------|----------|---------|----------------------------|---------|
| | C8 BMI | | C8 “I like the way I look” | |
| | Beta () | Sig (p) | Beta () | Sig (p) |
| Province | | | | |
| Newfoundland | -.028 | .238 | -.028 | .215 |
| Prince Edward Island | -.016 | .502 | .008 | .710 |
| Nova Scotia | -.043 | .076 | -.066 | .004* |
| New Brunswick | -.012 | .621 | .031 | .179 |
| Quebec | -.007 | .790 | -.034 | .179 |
| Manitoba | -.054 | .029* | .016 | .484 |
| Saskatchewan | .003 | .900 | .009 | .707 |
| Alberta | -.039 | .120 | .036 | .134 |
| British Columbia | .006 | .811 | .034 | .161 |
| Gender | | | | |
| Female | .160 | .000* | -.199 | .000* |
| Predictor | | | | |
| C7 NSBPA | .071 | .003* | .110 | .000* |

*Statistical significance

Health Variables

Do adolescents' PA levels and health variables change?

Wilcoxon signed rank tests were carried out between C7 and C8 NSBPA, C7 and C8 Health Status, C7 and C8 BMI, and C7 and C8 “I like the way I look” rating to identify change over time. Table 12 displays the means and standard deviations of the variables used in these analyses.

Table 12

Means and standard deviations for Wilcoxon signed-rank variables

| Variable | <i>M</i> | | SD | | Sig (p) |
|----------------------------------|----------|-----|------|------|---------|
| | C7 | C8 | C7 | C8 | |
| NSBPA (3-12) | 8.0 | 7.0 | 2.21 | 2.22 | <.000 |
| Health Rating (1-5) | 4.0 | 4.0 | .81 | .89 | <.000 |
| BMI (1-3) | 1.0 | 1.0 | .56 | .55 | .014 |
| “I like the way I look” (1-5) | 4.0 | 4.0 | 1.04 | 1.01 | .310 |

NSBPA. Wilcoxon signed rank test identified a statistically significant difference in mean ranks between C7 NSBPA ($M=8.0$) and C8 NSBPA ($M=7.0$), $Z = -17.27$, $p<.05$, $r = .41$.

Participants had lower levels of NSBPA in C8 when compared to C7, therefore the frequency of NSBPA per week decreased after two years.

Health Status and BMI. Wilcoxon Signed Rank test also showed a statistically significant difference in mean ranks between C7 Health Status ($M=4.0$) and C8 Health Status ($M=4.0$) $Z = -5.460$, $p<.05$. Although the median remained the same, a significant number of participants rated their Health Status lower in C8 when compared to C7. Moreover, there was also a significant difference in mean ranks between C7 BMI ($M=1.0$) and C8 BMI ($M=1$) $Z = 2.457$, $p<.05$.

Similar to Health Status, although the median remained the same, a significant number of participants rated their BMI higher in C8 when compared to C7. Health Status and BMI can be explained by the idea that a higher number of participants changed their score by more than one value in the direction of a negative health outcome, and fewer participants changed their score by one in the direction of a positive health outcome. For example, a higher number of participants went from *Normal Weight* to *Obese*, compared to a lower number of participants who went from *Obese* to *Overweight* or *Overweight* to *Normal Weight*. For Health Status, a higher number of participants went from *Excellent* to *Good*, *Very Good* to *Fair* to *Poor*, compared to a lower number of participants who went from *Poor* to *Fair*, *Fair* to *Good*, and so forth. Lastly, Wilcoxon Signed Rank test did not show a significant difference in mean ranks between C7 and C8 for the *I like the way I look* variable, $Z = -1.016$, $p > .05$.

RESULTS

Part 2

Focus group data analyses yielded six themes: impressions of PE, class environment, gender differences, uniqueness of PE, course conflict, and students' suggestions. Some of these themes were given more attention than others by participants and are represented through varying circle sizes in Figure 4. These themes also consisted of different meaning units which will be elaborated on.

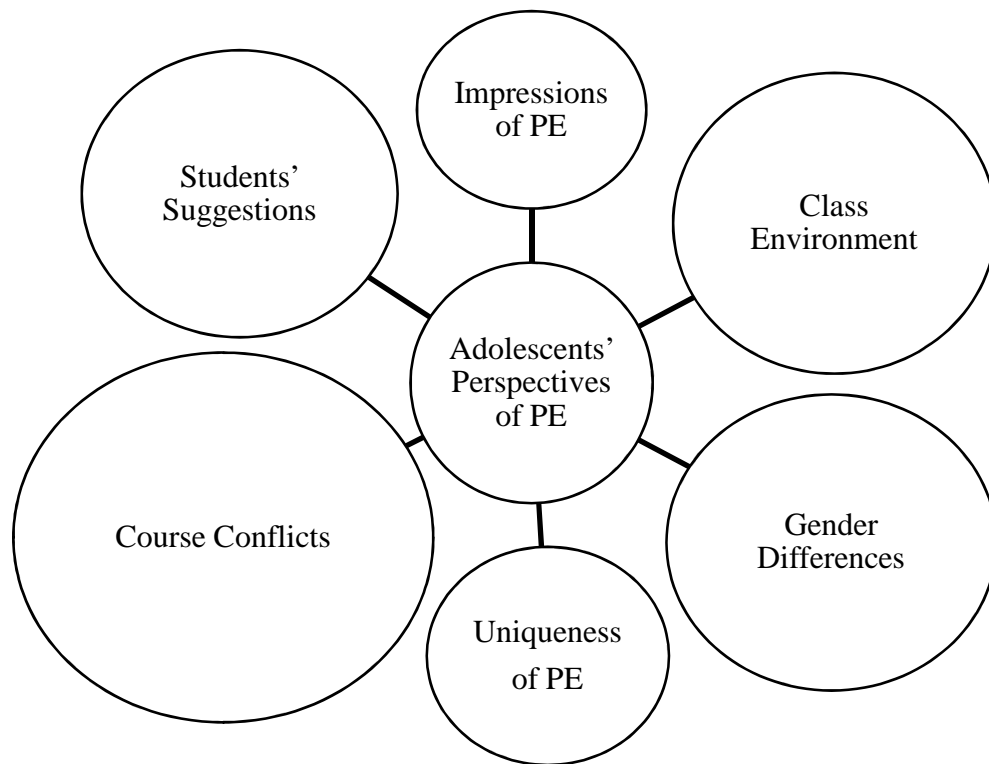


Figure 4

Focus group themes

Impressions of PE

In each focus group, participants were asked three questions that would reveal their overall impression of PE: 1) Define the term “physically educated”, and what does it mean to you?; 2) When you hear “Physical Education”, what comes to your mind?; and, 3) Imagine that the subject of Physical Education was a person, what kind of person would they be? These questions compared and contrasted between what participants thought about being physically educated, and the subject of PE. (Table 13)

Table 13

Impressions of PE

| Meaning Units | Examples | Quotes |
|---------------------|---|---|
| Physically Educated | Health Fitness Staying in shape Physical activity Knowing what is unhealthy for you Knowing how to be active | “Someone who understands what the importance of physical activity is, and how to be healthy.” (5, 04/03/2013) |
| Physical Education | Fun Socializing Different personalities Health Unit | |
| PE as a person | Good and bad days Nice and mean Fun Make you feel insecure Offend you without realizing Did not want to be friends with PE | <p>“They’re mean, a little bit, because they’re pushing you beyond your comfort zone, you may not feel comfortable but they’re making you a better person.” (2, 04/09/2013)</p> <p>“Nice sometimes, but not all the time, because that’s just the way they are.” (3, 04/03/2013)</p> <p>“Bipolar” (8, 03/07/2013) and (3, 03/26/2013)</p> |

Class Environment

Participants identified that the class environment is highly influential to their PE experience, and this theme consisted of the most meaning units. These meaning units included: the physical and social environment, participation and personalities, units and activities, emotions, teacher influence, and evaluation (Table 14). The most heavily discussed meaning units among the class environment were participation and teacher influence. Participants emphasized the importance of participation; they felt it was one of the most influential factors in PE. If students did not participate, games and activities would not be as successful, especially if the class was small. Participants also suggested that students should be motivated to participate, and that a student's lack of confidence in their skill compared to their classmates may be a reason for non-participation. The influence of teachers was discussed as a highly influential component of the class environment. All participants agreed that when a teacher participated and/or showed interest in the course the students felt more motivated and excited about the class. If the teacher led by example they felt more comfortable about trying new things and more capable of reaching their potential. It was made apparent that if the teacher was engaged and showed support, students felt comfortable; whereas if the teacher was disengaged and not giving positive feedback, the students felt uncomfortable. Overall, participants indicated a heavy emphasis on teacher influence as a deciding factor for whether they wanted to enrol again or not.

Table 14

Class Environment

| Meaning Units | Examples | Quotes |
|---------------------------------|--|--|
| Overall Environment | Positive Welcoming Inclusive Helpful Supportive Encouraging | |
| Physical Environment | Move around Outside of the classroom Release energy Field trips | <p>“Moving around and not being in a classroom, it influences me a great deal because you’re sitting in a classroom for most of the year and you don’t really get to get up and actually do something that you enjoy.” (7, 04/09/2013)</p> <p>“You get outside the classroom environment and it’s almost like a totally different environment. You’re actually doing something instead of just sitting there writing.” (2, 04/09/2013)</p> |
| Social Environment | Meeting new people Making friends Socializing | <p>“You have friends in your class. You don’t have to just sit in a desk; you can be moving around with them and do work.” (4, 03/26/2013)</p> <p>“Friends motivate you. My friends will cheer for you; if it’s awkward it’s like whatever because your friends are there.” (5, 04/09/2013)</p> |
| Participation and Personalities | Classmates who do not try Non-participatory classmates Overly competitive classmates | <p>“...participation, if I know it’s going to be a gym class where no one is going to participate then it’s not going to be a good gym class.” (1, 03/07/2013)</p> |

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|----------|---|--|
| | Unmotivated classmates | <p>“Participation and class size are big ones because last year I was in a grade 12 gym class and we only had seven people...half the girls didn’t participate and we didn’t have enough girls to play volleyball....even when everyone was there we couldn’t do it because half the class wouldn’t participate.” (5, 03/07/2013)</p> <p>“...some people don’t have the motivation and aren’t used to being physically active. There are kids who don’t have any interest in sports – who would rather read a book or watch TV. It doesn’t appeal to them. It’s not that they can’t do it it’s that they don’t want to.” (6, 03/07/2013)</p> <p>“Some people take it too seriously; that drives me crazy; people who don’t take it seriously at all and people who take it too seriously.” (4, 03/26/2012)</p> |
| Emotions | Intimidation Embarrassment Fear Discomfort Stress | <p>“I think in grade 9 the girls are still scared of high school so they don’t really know what to expect so they don’t participate.” (5, 03/07/2013)</p> <p>“Even with the male students, like in the earlier grades, if they’re not the physically active type and they’re in a class with a bunch of athletes they might not try.” (6, 03/07/2013)</p> <p>“If you don’t have enough self-esteem, I guess then you’re not going to want to do anything. If you don’t have self-esteem you’re not going to want to put yourself out there and try in gym.” (5, 04/09/2013)</p> |

| | | |
|----------------------|---|--|
| | | <p>“Embarrassment and discomfort...I always feel awkward playing sports because I don’t know what I’m doing so I’m afraid to embarrass myself or do the wrong thing in front of people.” (2, 03/26/2013)</p> <p>“A lot of the guys don’t care about their self-image that much, but some of the smaller guys when they play something big like football, they get really scared about it, sometimes they skip.” (6, 03/26/2013)</p> |
| Units and Activities | Weight room Running Fitness testing | <p>“We know at the end of June we’re going to walk back in the room (for final testing) and I think ‘what if I haven’t improved?’ It’s just the anxiety.” (5, 04/03/2013)</p> <p>“I think a lot of people get picked on because of the beep test, they see you drop out at a certain level” (1, 03/26/2013).</p> |
| Teacher Influence | Motivators Demonstrators Confidant Supportive Encouraging Disengaged Does not give feedback | <p>“Our gym teacher is awesome; you’re so excited to be there. Every day there are stories, the most random things come up and she’s cool with it. She just pushes you and it’s fun, but in the opposite if you have a teacher who’s hardcore, makes you feel bad, doesn’t encourage you, is terrifying, you don’t want to be there.” (5, 04/03/2013)</p> <p>“I had a teacher, who is like a little kid, and she’s hilarious, so if people were worried about it (PE), she’s bouncing off the walls, she made it really comfortable for everyone who was scared for what it would be.” (4, 03/26/2013)</p> <p>“When I was in grade 9 I really enjoyed my teacher, he was</p> |

| | | |
|------------|---|---|
| | | <p>really funny and made it really comfortable as a class...and when kids would act up, he would put them in their place. But then in grade 10 I had a teacher who wasn't so, I guess, authoritarian, and kind of let everything slip by, so it made it a little more uncomfortable...That was the reason I didn't take it anymore"</p> <p>(3, 03/26/2013)</p> <p>"The teacher didn't care at all about the kids. And it was like a split grade class, so all of them were older grade kids, and a lot more intimidating and stuff, and they basically ruined the class, and we had an inexperienced teacher on top of that...that was the worst class ever, I decided not to take it anymore"</p> <p>(6, 03/26/2013)</p> |
| Evaluation | <p>Inconsistent</p> <p>Lacks structure</p> <p>Need a marking scheme</p> | <p>"Some teachers mark more based on skill and sometimes that's not fair, because some students do a lot of sports outside of school and they grew up with it, and some people never really did, so it's harder when they mark on skill, because you're going to get a lower mark."</p> <p>(4, 03/26/2013)</p> <p>"You're all there; you all have to do it, no matter what. It's graded on effort, not how good you are. You can be the best athlete in the world, not put any effort in, and fail. It's equal. Other classes, it's determined on how smart you are...Gym class is an equal playing field for everybody it's all about effort and only you control effort."</p> <p>(6, 03/07/2013)</p> <p>"In grade 9, I wasn't very good at gym, but I always participated, and came with my jersey, and I tried, so I got like an 88."</p> <p>(3, 03/26/2013)</p> |

Gender Differences

The aforementioned themes and ideas were generally agreed upon between males and females, but despite these similarities, some topics were given individual emphasis depending on the gender of the participant. Meaning units that yielded gender specific responses included: co-ed versus same-sex classes, bullying, health unit, uniforms and change rooms (Table 15). Males were generally indifferent and did not express much preference regarding co-ed classes, whereas females spoke more openly about their difference in opinions. Females who had previously identified themselves as athletic suggested that co-ed classes did not bother them because it gave them an opportunity to be challenged. Most females also agreed that it was fun to mix once in a while but they would generally prefer a same-sex class because males were viewed as overly competitive. Also, females enjoyed the openness of same-sex PE because it gave them an opportunity to ask questions throughout the health unit without feeling judged by their male schoolmates.

Since uniforms were not consistent across the four focus groups and change rooms were different at each school, participants had unique perspectives. At schools where uniforms were enforced, males generally did not mind their PE uniform. At schools where uniforms were not enforced, students felt that there should be action taken against students wearing revealing PE attire. Females disliked wearing male style shorts and grey shirts that showed sweat marks. All students agreed to the idea of having more flattering options to choose from, with the understanding that they would be responsible for the cost. Moreover, all participants generally disregarded change rooms as a potential influential factor of their PE experience. Females indicated that they needed more mirror space to get ready for their next class, and males indicated that if there was ample time, and the showers had walls and/or curtains, they would

shower before their next class. This was of interest since both genders suggested they did not like feeling sweaty for the remainder of their day after PE.

Table 15

Gender Differences

| Meaning Units | Examples | | Quotes |
|-----------------------------|--------------------------------------|---|--|
| | Males | Females | |
| Co-Ed versus Same-Sex Class | Females do not try Males show off | Males will not include females More fun with all females | <p>Male: “We were playing soccer and then two girls went to the middle of the field and started picking flowers...as long as they try and they try to challenge us, or challenge themselves, I would share the ball.” (2, 04/09/2013)</p> <p>Females: “In my opinion, when we had co-ed classes in grade school it seemed like the girls didn’t want to try; the guys weren’t giving the girls a chance, like if you were playing a sport and on the same team.” (6, 04/09/2013)</p> <p>“Then we would play with girls playing each other and boys playing each other and it was so much more fun because we got to touch the ball and would pass it to each other.” (9, 04/09/2013)</p> <p>“I like how in grade 9 it is just girls and just guys, because in grade school I absolutely hated gym with a passion, more than I did in high school, because if it’s just girls you just have fun and it’s less competitive.” (2, 03/26/2013)</p> <p>“I would hate being in a co-ed gym class. Our class, the things that come up, if guys were there it would make it so awkward, we</p> |

| | | | |
|-------------|---|---|---|
| | | | wouldn't be able to be as fun and open, and I think we wouldn't be willing to try as hard...I just think girls wouldn't be as confident." (5, 04/03/2013) |
| Bullying | Not prevalent Negative judgment from staff | Not present | Males: "Bullying. That's what I was most worried about going into grade 9 gym, but it didn't turn out to be such a huge factor when I got there because I wasn't the worst or the best, so I blended in." (3, 03/26/2013) "It seemed like some of the teachers wouldn't be very encouraging for kids being evaluated because I remember one really un-athletic kid, we were running laps, and when the teacher asked him how many laps he did he said "just one" and the teacher was like "of course". Sometimes the teachers have a stigma against the lesser kids." (6, 03/26/2013) |
| Health Unit | Separate course Combined with another course Want to skip | Opportunity to ask questions Curiosity | Male: "I don't like the health unit, it should be a separate class, if I am in gym I don't really want to be in a class, cause I'm ready to go do something, then we're in a class for a week" (3, 04/09/2013) Females: "We have a lot of questions, we have a lot of stuff we need to know, so we get to go in there, and it's open, nobody cares, ask a question, say whatever, and make any analogy, it's just better for us." (5, 04/03/2013) "It's all girls. If we're in health talking about girl stuff...we're all girls, we're all going through the same thing." (9, 04/09/2013) |

Uniqueness of PE

PE has been considered unique for a variety of reasons; two meaning units that were present across all four focus groups included enjoying PE because it is fun/a stress reliever, and an avenue for personal gain (Table 16). Fun was mentioned and discussed by all focus groups, yet some participants had a different perspective on what they identified as fun. The majority of participants suggested that “fun” was something they would emphasize if trying to get students to enrol, and why they chose to enrol. They all agreed that the fun level of the class weighed heavily on the environment and the teacher. Participants also identified mixed feelings regarding the opportunity to relieve stress through PE class. Some participants felt that PE gave them balance in their schedule; especially if they had other hard classes in their schedule. Other students felt that PE was a cause of stress in their day and was not an opportunity to relax.

Participants also discussed the opportunity to reap personal benefits through PE class. PE was considered as an environment in which one can challenge themselves, develop skills, and improve skills, while progressing toward a goal. Setting goals and being able to measure them at the end of the semester motivated them to work harder and led to a more positive experience. Some participants saw improvements in their physical ability which gave them confidence to pursue PA outside of PE.

Table 16

Uniqueness of PE

| Meaning Units | Examples | Quotes |
|-------------------|---|---|
| Fun/Stress Relief | Environment Teacher | <p>“Stress relief. Especially if it’s going to be one of those semesters...you feel overwhelmed. That would be a great semester to have gym.” (3, 03/07/2013)</p> <p>“If you have a hard semester like physics, biology, anthropology, and gym, it’s still sweet because you get a release.” (6, 03/07/2013)</p> <p>“I do better in a classroom environment. That’s my comfort zone, so being in gym would stress me out more than in a classroom.” (2, 03/26/2013)</p> <p>“There is not much relaxation in gym, at least not for me.” (03, 03/26/2013)</p> |
| Personal Gain | Productive Motivating Challenging Opportunity to set goals | <p>“The teacher times you and you get your times and you’re competing with yourself to see if you can beat that. I joined cross country because I was in a lot better shape and did all that so I feel like I just improved myself.” (5, 03/07/2013)</p> <p>“I don’t have the motivation to go outside and run for a while...so it’s a good way to incorporate it without having to do stuff outside of school.” (5, 04/09/2013)</p> |

Course Conflicts

This theme was discussed by all focus groups, including grade nines, and presented itself has a highly influential barrier of PE enrolment (Table 17). Participants identified the limited space in their timetable for PE as part of the reason students do not enrol. A large number of participants who wished to take PE indicated that they did not have room in their schedule for PE

because there were classes they needed to take as prerequisites for future classes. Certain prerequisites were identified as necessary not only for senior years of high school but for university acceptance, if that is the students' goal. PE was beneficial for getting active but was not considered useful, relevant, or practical, in comparison to other courses. With limited timetable space in grade 10, students were forced to choose carefully between a wide variety of options. This theme was consistently agreed upon and had a large influence in whether students chose to enrol or not in the future.

Table 17

Course Conflicts

| Meaning Units | Examples | Quotes |
|------------------|---|--|
| Course Conflicts | Limited space in timetable Other mandatory classes PE is not a prerequisite | <p>"I feel like maybe because they thought there were better programs. Gym is something you can get active in and they had prerequisite courses they needed to focus on." (1, 03/07/2013)</p> <p>"I personally didn't take it again after grade 9 even though I always liked gym and everything because there were so many courses that I wanted to take in grade 10 that would be prerequisite courses for future courses that I felt it wouldn't help me in any way after that." (2, 03/26/2013)</p> <p>"There are other prerequisites you need for other career paths. So maybe if they were to take out different set in stone classes that not everyone wants...I think gym is more important...it would be easier to get more kids to go to gym." (4, 04/03/2013)</p> <p>"I really wanted to take gym, but I don't have two options to pick from. I couldn't pick it first because I wanted to pick as many courses as I can so I can find out what I want to do in the future." (1, 04/09/2013)</p> |

Students' Suggestions and Insight

Through all four focus groups participants made potential suggestions for what may increase PE enrolment, and what considerations should be made to current ideas. Participants discussed the idea of mandatory PE for four years of high-school, competitive versus non-competitive classes, the benefits of options, and expressed the want to have their voice heard (Table 18). When participants were asked how they would feel about being required to take PE for four years of high school the responses were generally mixed. The more athletic participants welcomed this idea, whereas the less athletic participants did not want another course forced on them. Participants outlined the trend that, by the time they are in grade 12, students in PE are all generally competitive and have chosen to be there. This concept initiated conversation among the participants regarding different levels of classes (i.e. competitive versus non-competitive classes).

Course design discussed in terms of separating classes by tiers of competitiveness; which was generally supported by majority of participants. Participants indicated that more students may enrol if they know they would be paired with other students who are interested in the same activities as them and are not overly competitive. Additionally, participants supported the idea of having more options, whether it is regarding course design or activity layout, and having their opinion heard by their teacher. Going on field trips and having specialized instructors come in to teach the students new activities were strong influences of positive PE experiences. Also, having more choices in terms of what activities will be conducted in PE class was heavily emphasized as it gave each student a better chance at finding something they may be good at.

Lastly, when participants were asked what they would emphasize if their job was to get students to enrol in PE they responded with a variety of answers. Some students indicated that

students' limits or skill level did not matter; they could participate in PE enjoy a healthy lifestyle. Students should not feel intimidated or scared if they are not athletic, because there are different units; one of which they may be good at. Also, participants agreed on the suggestion that learning to be active is something that they can use for the rest of their lives. Furthermore, participants from different focus groups suggested conducting a survey in which teachers could obtain an idea of what activities to include in the course.

Table 18

Students' Suggestions and Insight

| Suggestion | Quotes |
|---------------|--|
| Mandatory PE | "I think being forced in a direction that you might not necessarily feel is your strongest direction can always come with a form of backlash." (3, 03/26/2013) |
| Course Design | "I think if it was a requirement, there should be different tiers of classes, the serious kids could take it, and the kids who just want to take it for fun would take a different class." (3, 03/26/2013) |
| Options | It depends on personal preference; for example, I really like splitting up the guys and girls, because I felt like guys were more competitive...but (5) doesn't mind it at all and really likes it. So it's kind of hard because everybody has different opinions." (2, 03/26/2013) "At the beginning of the semester we give our teacher \$25 and we pick five things we want to do, so we went skating, we have yoga, hip-hop, and instructors come in. One of the most fun things I've ever done in my life is Zumba!" (5, 04/03/2013) |
| Emphasis | "I would let people know it's not as scary as it's cracked up to be, that the gym teacher, in some cases, can be really nice and accepting and can push you to be the best student you can be." (4, 04/03/2013) "It doesn't matter if they're not athletes. If they keep that up, what they learned in gym, about getting in shape and working out, if they keep that up throughout life it'll become a habit and that's the best thing, that's what you want for the rest of your life." (3, 03/07/2013) |

Evaluation Form Summary

To conclude each focus group, evaluation forms were completed anonymously by each participant. This form gave participants the opportunity to rate their experience with the focus group (positive, neutral, or negative), to comment on something they wanted to say but did not get a chance to, and to comment on what they liked and/or disliked about the focus group. This gave all participants an opportunity to anonymously express their opinion without feeling judged. In general, participants commented that they enjoyed the discussion, felt comfortable, and talked openly with peers respecting their opinions and not passing judgment. The focus group gave them a deeper understanding of others' perspectives, potentially of the opposing gender. All students rated their experience as positive, but one student, who rated it as neutral.

One student commented that he/she "would have taken gym if it wasn't focused on strength and mainstream sports. If they focused on stretching, working out, and flexibility, it would seem more productive and I'd feel more in shape". Another student anonymously commented "I liked the openness of the group and that it's confidential. It got me thinking about aspects of PE I hadn't before". Furthermore, another student mentioned his/her belief toward PE "...personal goals are one of the most important things. I know how important it is to me as I'm in my fitness class."

DISCUSSION

The purpose of this study was multi-dimensional: 1) to identify adolescents' rating of PE among other subjects and identify it as a predictor of PA levels (NSBPA and SBPA) and health variables (BMI and "I like the way I look") two years later; 2) to identify the relationship of C7 NSBPA with C8 NSBPA and health variables (Health Status, BMI, and "I like the way I look") two years later; 3) to identify changes in PA levels (NSBPA) and health variables (Health Status, BMI, and "I like the way I look") after a two year period; and 4) to gain insight on adolescents' perspectives of PE through an understanding of their likes, dislikes, and other factors that may influence their opinion. Numbers one through three were components of Part 1 of this study, in which Cycles 7 and 8 of the NLSCY were analyzed, and number four included facilitation of focus groups at four high schools throughout Windsor-Essex County in Part 2. These findings provide beneficial information regarding recent PA levels among Canadian adolescents, and the perspectives of PE class, which can be an avenue in which PA levels can be increased and the benefits of PA can be explored.

Part 1

PE Rating Trends

With the current study identifying 78% of participants preferring PE over other subjects, it is of interest to consider that PE enrolment rates have been declining among high school students (Dwyer et al., 2006; Faulkner et al., 2007; Hobin et al., 2010). The distribution of subject preference from C7 showed that PE was preferred over other subjects by majority of the participants; although, females generally rated PE lower when compared to males. This finding can be compared to research within Ontario that identifies a decline in PE enrolment among

adolescents for males and females, but females are generally less likely to enrol (Dwyer et al., 2006; Faulkner et al., 2007; Hobin et al., 2010). Furthermore, research suggests that males were more likely to enrol in PE, attend PE class on a daily basis, and participate in moderate-to-vigorous physical activity during class time when compared to females (Faulkner et al., 2007). Research also identified a linear decline in PE when observing by grade; indicating that with each year of high school, a student's likelihood of enrolling in PE will decrease (Faulkner et al., 2007; Hobin et al. 2007). This may infer that although participants generally preferred PE over other subjects, they did not enrol due to a variety of barriers. Part 2 discusses a range of contributors to the PE experience and PE enrolment which shed light on why PE preference and enrolment are not parallel.

By province, Quebec and Manitoba had lower PE Ratings when compared to Ontario, and since PE is mandated by province, it is difficult to have a discussion from a national perspective. Currently, among high schools, PE is mandated for four years in Manitoba at 110 hours per credit. PE is also mandated for four years in Quebec at 150 minutes per week; thus students receive PE every 2 to 3 days on a 9 day cycle. In New Brunswick, PE is mandated at 74-135 minutes per week over two years (grade 9 and 10). Lastly, PE is not compulsory in PEI, and for one credit in the remaining provinces and territories, including Ontario (Physical & Health Education Canada, 2012). It should be noted that Manitoba was mandated for four years of high school in 2008 which was after NLSCY data collection for Cycle 7 which was done in 2006. This indicates that it cannot be speculated that participants in Manitoba prefer PE less than those in Ontario based on PE being mandated for four years of high school. Also, in grades 11 and 12, high school students in Manitoba are able to receive a PE credit through delivery of an in-class or out-of-class combination approach (25-75% in-class and 75-25% out-of-class). If students

wish to participate in the out-of-class approach the program needs to be approved by a teacher before and after the program. More information on the Manitoba HPE curriculum can be found at edu.gov.mb.ca. Lastly, previous research has not specifically identified PE Ratings by province across Canada, making the current study unique to the literature.

PE Rating as a Predictor

Since PE Rating has not been specifically used in previous literature to predict the PA levels and health variables, these relationships will be compared to literature on PE enrolment. The PE Rating variable identifies students who prefer PE but may not necessarily be enrolled. These comparisons permitted an examination of the relationship between PE Rating and relationships within literature on PE enrolment, while outlining a unique contribution to the current literature.

Participants who preferred PE over other subjects had higher NSBPA and SBPA levels, lower BMI scores, and rated themselves more favourably for the “I like the way I look” variable in C8. When specifically observing gender differences, PE Rating predicted lower NSBPA and SBPA levels, lower BMI scores, and less favourable rankings for the “I like the way I look” for females in comparison to males. This brings attention to a clear difference between males and females across the variables of interest. The “I like the way I look variable” was linked to methodology in research based on adolescents’ self-esteem (Kleinfeld, 1998; Ma, 2003), thus the link between that relationship and the literature will be based on research around PA and self-esteem. Since PE and self-esteem is under-researched in the literature, this study provides a new perspective on potential barriers to PE enrolment through the positive relationship between the two variables and comments from focus groups in Part 2.

The current finding of PE Rating predicting PA levels is similar to research that suggests schools with a greater number of students enrolled in PE reported higher overall PA levels when compared to schools with fewer students enrolled in PE (Hobin et al., 2010). Moreover, Dwyer and colleagues (2006) found that the majority of students who enrolled in PE met moderate to vigorous PA recommendations through the HPE curriculum, further supporting the connection between PE and PA. This demonstrates the opportunity for adolescents to increase PA levels through PE class. Moreover, the relationship between females and lower PE Ratings and lower SBPA levels as predicted by PE Rating is supported by previous research on gender differences. Research suggests that females have lower levels of PA and lower PE enrolment rates when compared to males (Kimm et al., 2002, Faulkner et al., 2007; Hobin et al., 2010); thus further supporting a disconnect between gender and PE across Canada.

The current finding that PE rating predicts a lower BMI for both genders, and is a stronger predictor of BMI for females, supports earlier work by Datar and Sturm (2004) who suggested that time spent in PE has a negative relationship with BMI change for elementary school females who are overweight or borderline overweight. This relationship was also negative for overweight or borderline overweight males, but was not statistically significant in previous literature. Datar and Sturm (2004) have identified that this relationship is significant at an earlier age for females. When observing adolescent females longitudinally, Camhi and colleagues (2010) found that PE led to a variety of health benefits, including lowering BMI, adiposity measures, and improved body composition measures. Females who were considered normal weight or overweight were more likely to maintain these benefits for two years following the PE class measurement (Camhi et al., 2010). This literature, along with the current study, outlines the importance of PE among females throughout youth and adolescence in terms of achieving and

maintaining a healthy BMI, and the need for more research on the influence of PE on BMI among male adolescents. Additionally, PE Rating predicted participants' self-esteem through the "I like the way I look" variable, and suggested a positive relationship between the two variables. This finding echoes similar research which suggests that individuals who view themselves positively are more likely to enrol in PE, whereas individuals who view themselves more negatively are less likely to enrol (Luke & Sinclair, 1991).

When compared to Ontario, PE rating predicted that participants from Quebec and British Columbia had lower frequencies of NSBPA per week. This finding is consistent with similar research on PA levels by province, which suggests Quebec (52%) is generally below the national average (55%), but is inconsistent with the same research that suggests British Columbia (60%) is above the national average (Statistics Canada, 2012). Since provinces and territories do not have the same age structures, the rates for each province were age-standardized to a population reference to make meaningful comparisons (Statistics Canada, 2012); thus a concise parallel cannot be made between the current study and this research. PE Rating also predicted that participants from Nova Scotia had higher BMI's when compared to participants from Ontario. This finding is similar to research suggesting 32% of individuals between the ages of 2 and 17 from Nova Scotia were considered overweight/obese which was significantly higher than the national average of 26% (Shields & Tjepkema, 2006). Due to a small sample size for adolescents and youth, this study collapsed 2 to 17 year olds into one group to reflect overweight/obese for youth and adolescents (Shields & Tjepkema, 2006).

Moreover, since the use of PE Rating to predict NSBPA, SBPA, BMI, and "I like the way I look" has not been previously researched and controlled for by province, it is difficult to directly compare findings from the current study. Therefore, the current study presents unique

findings regarding the influence of PE Rating among PA levels and health variables which can be identified by province.

The aforementioned relationships can be explained through a variety of possibilities. It is interesting to consider that participants from Quebec and Manitoba do not prefer PE over other subjects as much as participants from Ontario. Quebec and Manitoba have mandated PE all throughout high school. Also, although PE enrolment rates have been on the decline for both genders, females generally have lower enrolment rates (Faulker et al., 2006; Hobin et al., 2010) which echoes findings from the current study that show females also and prefer PE over other subjects significantly less when compared to males.

Understanding the relationship between PE Rating and PA levels is not clear since PE Rating simply predicted PA levels; which leaves one guessing the reason for this. Perhaps participants who preferred PE over other subjects are generally more active because of their personality traits and social environment. In contrast, they may have experienced positive PA experiences through PE leading them to pursue it outside of the class setting. This uncertainty should not take away from the big picture, which is that PE has been identified as an opportunity to increase PA levels (Wechsler et al., 2000; Biddle et al., 2004; Fishburne & Hickson, 2005; Dwyer et al., 2006; Public Health Ontario, 2010) and should be taken advantage of by health advocates, teachers, and students alike. When considering the gender difference in regard to PE Rating predicting NSBPA and SBPA levels, it is apparent through aforementioned research that females are generally less active than males. With fewer females than males preferring PE over other subjects it is no surprise that their PA levels are generally lower. Additionally, although NSBPA is not part of school time, the relationship between PE Rating and NSBPA identifies that

there is a link between how participants rated PE and their PA levels outside of the school environment.

With regards to Health Status, PE Rating may play an influential role in BMI since PE has been outlined as an opportunity to lower BMI, adiposity measures, and improve body composition measures (Camhi et al., 2010). Participants who prefer PE over other subjects may be more health conscious and, therefore, work at maintaining a lower BMI through a variety of potential avenues such as healthier eating habits. In regards to the gender differences between PE Rating and BMI, females actually have a lower, healthier, BMI when compared to males. It could be that since among adolescents, females are generally less active than males, PE gives them an opportunity to increase their PA levels thereby positively impacting their BMI. If males are already active outside of school, on school teams, or through PE there may not be a lot of room for their BMI to change; they will eventually plateau at one level. As mentioned previously, since the predictor variable is PE Rating and not PE enrolment it is difficult to make a clear connection.

The relationship between PE Rating and the “I like the way I look” variable (self-esteem) is of interest when considering the comments made by participants in the focus groups regarding embarrassment and intimidation. PE class can be viewed as an opportunity for students to be exposed by their skills and/or lack thereof; these data suggest that students who have higher PE Ratings may generally be more confident people. This possibility is related to participants from focus groups in Part 2 who discussed not feeling easily embarrassed and simply enjoying PE, whereas some participants described it as a very intimidating experience because they felt it was an opportunity to feel embarrassed.

The importance of enjoying PE is influential in providing Canadian adolescents with opportunities for a positive health profile. This does not imply that students should not enjoy other subjects taught in the school system, but that PE courses should be considered an important part of the educational experience. PE Rating has been identified as a significant predictor of PA and health related variables, but PE enrolment is declining throughout adolescence, (Dwyer et al., 2006; Faulkner et al., 2007) which brings attention to the importance of PE. These relationships do not necessarily infer causality, since it could be that participants who had higher levels of C7 NSBPA reported a higher PE Rating, but nevertheless this relationship is of interest when considering health promotion strategies for adolescents. Since PE has been previously identified as an opportunity to increase PA (Fishburne & Hickson, 2005; Wechsler et al., 2000; Biddle et al., 2004; Public Health Ontario), the relationship between PE Rating and NSBPA identifies the connection between both variables and the influence they may have on each other.

C7 NSBPA as a Predictor

Participants who reported higher C7 NSBPA levels also reported higher NSBPA levels, higher Health Status, lower BMI, and rated themselves more favourably for the “I like the way I look” variable in C8. Similar to PE Rating, all of these aforementioned relationships lead to positive health outcomes, which bring attention to the importance of NSBPA in early adolescence. Since cases could not be analyzed for SBPA, it is not clear whether these outcomes could be reached through that form of PA as well. When observing this relationship by gender, C7 NSBPA predicted lower NSBPA levels, lower BMI, lower Health Status, and a less favourable score for the “I like the way I look” variable for females when compared to males. Aside from Health Status not being analyzed, these relationships are consistent with the

aforementioned gender differences with PE Rating. Furthermore, since PA has not been related to how adolescents rate their health, the relationship between NSBPA and Health Status is a unique contribution to the current literature base.

The relationship between C7 NSBPA and C8 NSBPA is of importance when one considers the findings that suggest 70-80% of obese adolescents will remain obese throughout adulthood (Moran, 1999). Literature has also shown that being physically active throughout adolescence is specifically associated with beneficial PA habits during adulthood (Dietz; 1998; Moran, 1999; Janssen et al., 2004). This outlines a direct relationship between the time spent being physically active in early adolescence and the time spent being physically active in later adolescence and adulthood. Moreover, the relationship of C7 NSBPA predicting lower NSBPA for females is supported by research that suggests overall PA levels decline throughout adolescence, and that this decline is stronger for females (Nelson et al., 2006).

The link between C7 NSBPA and BMI is consistent with previous research which identifies the relationship between PA outside of PE class and BMI (Berkey, Rockett, Gillman, Colditz, 2003). Research also shows that adolescents (10-15 years old) who increased their overall PA levels over one year showed an improvement in BMI score. These effects were stronger for adolescents who were overweight at the beginning of testing, but significant for normal weight adolescents as well (Berkey et al., 2003). In support of the relationship between C7 NSBPA and BMI for females, literature suggests that an increase in BMI is significantly influenced by declines in PA (Kimm et al., 2005).

Consistent with aforementioned findings from using PE Rating as a predictor, C7 NSBPA also predicted more favourable scores for the “I like the way I look” variable and lower BMI scores. This is similar to research on 10 and 11 year old students which suggested females

who participate in PA less frequently can be related to high body dissatisfaction and low self-esteem (Sands, Tricker, Sherman, Armatas, and Maschette, 1997). Furthermore, NSBPA has not been specifically examined as a predictor of how adolescents report their self-esteem but similar research suggests that vigorous PA is linked to more favourable self-esteem scores (Strauss, Rodzilsky, Burack, & Colin, 2001), and that PA has a positive relationship with self-esteem (Aaron et al., 1995; Whitehead & Corbin, 1997; Tremblay, Inman, & Willms, 2000).

When compared to Ontario, C7 NSBPA predicted lower Health Status and “I like the way I look” scores for participants from Nova Scotia. This relationship has not been controlled for within Nova Scotia which makes this finding unique to the current literature; moreover, this could be a potential result of participants in Nova Scotia generally having a lower BMI when compared to participants from Ontario and the national average (Statistics Canada, 2012). C7 NSBPA also predicted higher BMI scores for participants from Manitoba, which echoes the aforementioned finding of Manitoba (31%) reporting a higher percentage of obese/overweight individuals between the ages of 2 and 17 when compared to Ontario (27%) (Shields & Tjepkema, 2006). C7 NSBPA predicted lower “I like the way I look” scores for participants from Quebec, Saskatchewan, Alberta, and British Columbia. Since the relationship between PA and self-esteem has not been researched by province, this finding cannot be compared to previous research and presents a unique finding to the current literature base.

The connection between C7 NSBPA and C8 NSBPA outlines the importance of shaping positive health behaviours at a young age with the idea that they will carry into later adolescence, and eventually adulthood. The impact of PA on the aforementioned health variables are positive, which further outlines the importance of promoting NSBPA. With PA declining throughout adolescence, and the literature suggesting that health related behaviours set in adolescence have a

high chance of carrying into adulthood, Canadian adolescents are not setting themselves up for a healthy future. It is vital to understand the importance of being physically active in early adolescence and of maintaining that PA throughout late adolescence and into adulthood. Since females have displayed lower PA activity levels in previous literature along with the current study, it is apparent that there are differences between gender and PA across Canada. This could be due to some females having different general interests when compared to the majority of males, but emphasis should be put on the importance and the impact PA has on both genders. Perhaps PA does not appeal to females in the same way that it does to males, but efforts should be made to understand why there is a gender difference here and what can be changed to accommodate for it.

Additionally, with BMI and self-esteem being associated with C7 NSBPA, perhaps participants' self-reported Health Status declined as a potential result. If an individual has a high BMI and generally does not like the way they look, they may potentially rate their Health Status more poorly. The relationship between C7 NSBPA and BMI can be explained through an understanding that increased levels of PA lead to a decrease in BMI. Therefore, this may potentially lead to higher rankings of their physical appearance, and an overall positive outlook on their Health Status.

When observing the health related differences by province when using C7 NSBPA as a predictor, one must observe the general health trends found among the provinces that are considered significantly different. As mentioned, since participants from Nova Scotia reported higher BMIs, this may attribute to their lower rating for the "I like the way I look" variable. It is difficult to determine why C7 NSBPA predicted less favourable ratings for the "I like the way I

look” variable for Quebec, Saskatchewan, Alberta, and British Columbia when compared to Ontario, since this is not a topic of previous research.

In general, there is a potential chain reaction that sprouts in early adolescence through PE experience and PA levels. Both of these factors influence BMI, which has an effect on self-esteem, and potentially Health Status; these are all components of a healthy profile. This chain reaction can be negative or positive depending on adolescents’ enrolment in PE and frequency of participation in PA.

Change in NSBPA and Health Variables

NSBPA, BMI and Health Status all showed negative change over the two year period between cycles, which indicates that as adolescents age they present a more negative health profile than two years prior. This further outlines that a significant number of adolescents are becoming unhealthier during a time where creating positive health habits are of great importance. The overall decline in NSBPA throughout C7 and C8 is consistent with literature that suggests that as an individual’s age increases, their PA levels decrease (Heath, Pratt, Warren, Kann, 1994; Aaron et al., 1995, Kimm et al., 2002; Nelson et al., 2006; Camhi et al., 2010; Canadian Fitness and Lifestyle Research Institute, 2012; AHKCRC, 2012). Specifically, Nelson et al. (2006) reported that overall MVPA frequency declined from early to mid-adolescence, and mid- to late adolescence for females. MVPA frequency did not significantly decline from early to mid-adolescence for males, but did significantly decline from mid- to late adolescence. Research has also reported a decrease in the mean number of steps taken daily among Canadian adolescents, with a more dramatic decline for females when compared to males, but both genders showed significant decline (Canadian Fitness and Lifestyle Research Institute, 2012). The

aforementioned research supports the notion that PA decreases longitudinally throughout adolescence, but they have not specifically examined NSBPA, which makes the identified decline from C7 to C8 a unique contribution to the literature. Previous findings, along with the current study, indicate the importance of maintaining high PA levels during the early years of adolescence, therefore, if these levels decline, they can still be considered high compared to the current national trends, leading to healthier outcomes.

In terms of BMI, tracking among adolescents has not been researched thoroughly, but some research have shown that when examining overweight adolescents, a significant number remain overweight or become obese into adulthood (Moran 1999; Oren et al., 2003). Additional research has also shown that a high BMI in adolescence is a vital indicator for overweight and/or obesity into adulthood (Moran, 1999; Guo, Wu, Chumlea & Roche, 2002). These findings coincide with research that overweight and obesity rates have been, and are continually, rising (Hedley et al., 2004; Shields, 2005; Statistics Canada, 2010). More research on this longitudinal change in BMI among Canadian adolescents is important when considering potential preventative and reactive measures to ensure healthy BMI values.

Regardless of past and present evidence identifying a need to promote PA, negative health trends are continually presented among adolescents. With NSBPA, Health Status, and BMI declining from early to late adolescence, Canadian adolescents are putting themselves at risk for an unhealthy lifestyle that may carry into adulthood. Since Health Status and BMI are directly associated with NSBPA, it may be clear why all three of these variables would decline over time. As previously identified, the decline of NSBPA levels has an influence on the aforementioned outcome variables that contribute to one's health profile. It is important that adolescents are made aware of the benefits and outcomes of meeting adequate measures of PA.

This includes, but is not limited to, higher self-esteem (Aaron et al., 1995; Tremblay et al., 2000) reducing the risk of developing chronic disease (Trudeau et al., 1999), increasing strength, bone density, and cardiovascular health (Bailey & Martin, 1994), and improved academic achievement (Coe et al., 2006; Trudeau & Shephard, 2008; Public Health Ontario, 2010; Nelson & Gorden-Larsen, 2000). Furthermore, many of the aforementioned variables contribute to individuals' health profiles and outline the importance in understanding how prevalent they are throughout adolescence, rather than at one specific time.

Literature continues to suggest the school environment as an avenue to promote PA, understand the importance of health behaviours, and shape healthy habits among adolescents (Wechsler et al., 2000; Biddle et al., 2004; Public Health Ontario, 2010). Within the school environment, PE class would not only be an ideal atmosphere for adolescents to engage in PA, but to also inform them about the benefits of PA and other health behaviours. PE is described as a subject which students can develop skill and increase the knowledge vital for living a healthy and active lifestyle (Fishburne & Hickson, 2005). Since students spend a high number of hours at school every day, it is presented as an obvious influence on adolescents' behaviours. The main goal of PE classes across Canada is to help students of all ages create and commit to healthy attitudes and behaviours, while emphasizing lifelong PA (Gibbons, 2009).

This study would be incomplete without answers regarding the "Why?" Findings suggest that: students generally prefer PE over other subjects; this PE Rating is a predictor of PA, BMI, and self-esteem; PA is a predictor of longitudinal PA, BMI, self-esteem and Health Status; and PE has been identified as a beneficial avenue to shape healthy behaviours and attitudes. The question is, why do high school students choose to not enrol in PE? Findings from focus groups assist with explaining continual decline in PE enrolment rates among high school students. By

taking a snapshot of adolescents' perspectives on PE through four groups of diverse local high school students, the aim of Part 2 is to identify what factors regarding PE are important when trying to improve the health profiles of Canadian adolescents by increasing PE enrolment rates.

DISCUSSION

Part 2

Outstanding Themes

PE has been consistently identified as an opportunity for students to increase their PA levels and become more educated on the benefits and importance of shaping a healthy lifestyle (Wechsler et al., 2000; Biddle et al., 2004; Fishburne & Hickson, 2005; Public Health Ontario, 2010). The benefits of PE have been identified, but students may not fully understand the potential importance PE can have in their lives now and into adulthood. The results present a large amount of agreement along with a mixed bag of opinions regarding student's personal motivation for enrolling in PE. These themes should be considered among administrators, teachers, and health advocates, when considering potential solutions to the continuous decline in PE enrolment among high school students.

There is an interesting contrast between how students defined "Physically Educated" and what came to mind when the subject of "Physical Education" was initially discussed. As mentioned, to be Physically Educated has been defined as learning skills that allow participation in a range of different physical activities (NASPE, 2004), this definition is fairly consistent with participants' definitions. They generally made positive associations with being physically educated through discussion on health, fitness, knowing how to be active and knowing what is unhealthy for you. Conversely, when the subject of PE was presented, some students made negative associations with discussion on personalities within their class, the health unit, and other negative emotions.

The class environment is comprised of a multitude of components including: the physical and social environment, participation and personalities, emotions, units and activities, teacher

influence, and evaluation. The overall environment should be positive, welcoming, and an avenue in which everyone can enjoy themselves and show support and encouragement for their peers. Specifically, the physical environment served as a unique approach to education through opportunity outside the classroom setting. This environment gives students the freedom to run around, be hands on, and try new things. It could also be altered further through off campus field trips or the inclusion of an instructor from the community. Emphasis on the physical environment has been identified as an influential factor among co-educational PE classes (Luke & Sinclair, 1991) and successful female PE classes (Gibbons, 2009). The social environment is also of importance as many students indicated they enjoyed the opportunity to spend time with friends and meet new people, which is supported by previous research on PE classes (Bauer, Yang, & Austin, 2004) and PA opportunities (Allison et al., 2005).

Regarding participation, students who do not participate have not been discussed throughout literature on PE classes; thus presenting a unique finding to the current literature base. Conversely, the theme of competitiveness and its negative connotations is heavily supported (Ferrer-Caja & Weiss, 2000; Bauer et al., 2004; Allison, et al., 2005; van Daalen, 2005; Gibbons, 2009). Allison and colleagues (2005) uncovered that students enjoy competing against themselves rather than their peers and would avoid pursuing opportunities for PA if they knew specific overly competitive peers would be present.

Students reported that PE brought about a variety of emotions; some of which were more prevalent among the less athletic participants. Embarrassment, discomfort, and intimidation were among the most popular emotions discussed. As supported by Luke and Sinclair (1991), if students were generally athletic they viewed the experience as fun and easy, whereas if students were less athletic, they felt PE was an opportunity to be exposed to their peers and potentially

judged by them. Luke and Sinclair (1991) further expressed that if students viewed themselves positively they were more likely to enrol, and if they viewed themselves negatively they were less likely to enrol. PE presents itself as an opportunity for students to be exposed by their ability, or lack thereof, in front of their peers and for some it contributed to feelings of discomfort, intimidation, and embarrassment. These feelings are supported by previous literature on the PE environment and continue to plague some students with negative PE experiences (Luke & Sinclair, 1991; Bauer et al., 2004; Allison et al., 2005; Gibbons 2009).

A handful of specific units and activities were given extra attention as influential factors to the PE experience. Although some students disliked running and viewed it as a reason not to enrol, this opinion was not as strong when compared to previous work (Luke & Sinclair, 1991). Conversely, fitness testing generally evoked negative feelings among all students; athletes and non-athletes alike. The athletic students were indifferent toward fitness testing because they felt they could get by, but the less athletic students dreaded this experience and suggested it caused them stress. This finding is consistent with the suggestion that students began disliking PE once students reached grade six and participation in fitness testing became mandatory (van Daalen, 2005).

One of the most influential factors discussed, was the teacher and their influence on the PE experience. Students felt that if the teacher participated, supported, motivated, demonstrated, and encouraged the class then the overall environment would benefit and their PE experience would be positive. If the teacher showed interest and engaged themselves in the class the students wanted to attend and work hard. Teachers were identified as having the ability to set the mood for the class, and the semester, through their actions and behaviours. Students spoke highly of teachers who were outgoing, encouraged goal setting, and acted as a confidant. Moreover,

students felt that if the teacher was disengaged, non-authoritarian, did not show interest, and did not give positive feedback; they did not have an enjoyable PE experience and would avoid enrolling in the future. These findings support previous research which suggest that teachers can influence the decision to continue in PE (Gibbons, 2009), or not enrol in PE (van Daalen, 2005), thereby contributing to both positive and negative attitudes towards PE (Luke & Sinclair, 1991).

Furthermore, PE evaluation was generally inconsistent and vague as discussed by the students. Overall, students suggested that evaluation was fair but too ambiguous for their preferences. Some students indicated that evaluation was based on effort and participation, whereas others indicated that they were often unaware of their grade and seldom received updates or progress reports. Students agreed that they would like to receive an outline on how they will be graded at the beginning of the semester, and updates after each unit. Luke and Sinclair (1991) identified evaluation as a minor determinant of PE but did not further discuss the implications; thus presenting a unique finding to the literature.

Additionally, previous research has found that male and female students view co-education PE classes negatively (Luke & Sinclair, 1991), and that females enjoyed being in same-sex classes (Gibbons, 2009). Moreover, females viewed same-sex PE as a safe environment to be themselves without their male classmates present; which was supported by literature on successful female PE classes by Gibbons (2009). Although peer bullying did not present itself, the mention of judgment from teachers was discussed across the groups among male participants. Males felt that some PE teachers would judge non-athletic students for lacking ability compared to the rest of the class; this judgment would not always be verbal but was also described as a general impression the students felt. Conversely, females did not contest to this, and felt this was unique to male PE classes. Previous focus groups have yielded similar results

through the suggestion that school staff made negative comments on students' abilities which would lead them to avoid participating in PE; although these comments were not separated by gender (Bauer et al., 2004). Males and females also expressed different opinions regarding the health unit. Females in same-sex classes had the opportunity to ask the questions they wanted without feeling judged by their male classmates; it is a safe place to talk with their teacher and classmates. Conversely, males disliked the health unit and wanted to skip days in which it was being taught. They felt that it should be a separate course and PE should be reserved for being active and moving around, rather than doing seat work. The health unit was not specifically identified as an influential factor of the PE experience in previous qualitative analysis, thus making this theme unique to the literature.

Uniforms have also received negative feedback in previous research, but options were not thoroughly discussed (Luke & Sinclair, 1991). Additionally, change rooms were generally agreed upon as a minor influence because of the minimal time spent in them. Although previous research suggests females dislike getting changed in front of their peers (van Daalen, 2005), this discussion was not prevalent. Minor suggestions made by each gender included males wanting privacy if there was time to shower after class, and females wanted more/bigger mirrors to make getting ready for their next period easier.

Unlike many other courses students will enrol in throughout their high school careers, PE is a unique opportunity to gain a credit. For students, PE is an avenue to have fun, relieve stress, and for personal gain. Although students had different examples of how PE was fun, majority who enrolled suggested this theme was a contributing factor. Trying new activities and having options were agreed upon as fun, and were among the themes students would emphasize when suggesting PE to students. Moreover, the theme of stress relief received mixed emotions

throughout discussion. Some students enjoyed the opportunity to unleash energy and felt having PE provided balance in their schedule, whereas some students felt PE caused them stress. Fun has been a consistent positive influence on the PE experience in previous literature (Bauer et al., 2004; Gibbons, 2009) but stress relief has not been identified which brings attention to a unique theme. Moreover, students felt they benefited from being enrolled in PE through a variety of personal gains. PE helped students feel productive, facilitated healthy living, motivated them to be active, developed and improved skills, and gave them an opportunity to set and achieve goals. Students spoke strongly about bettering themselves through accomplishing new challenges through their PE classes. With goal setting came hard work and boosts in confidence; leading to overall positive experiences. Previous literature supports the contribution of health benefits (Bauer et al., 2004; Allison et al., 2005) and goal setting throughout PE (Gibbons, 2009) as positive contributors to the experience.

Among other contributors to the PE experience, was a school related conflict that students could generally not control for. Students identified the need for other courses in their schedule as a prevalent barrier to PE enrolment. All agreed that after grade 9, when students are given the option to shape their schedule, they have limited space and a variety of electives to choose from. Students either wanted to take other courses to explore potential career paths (e.g., Auto-shop, Construction), or needed specific courses as prerequisites with university in mind (e.g., English, Science, Math). PE was considered less relevant and less useful when compared to some options; whereas students agreed some of the courses made mandatory now could be replaced by a PE class. Furthermore, whether the decision was driven through curiosity or academic pressure, students' schedules did not have room for PE. Previous literature has also

suggested that parents often place more emphasis on taking academic courses over PE (Allison et al., 2005; Hobin et al., 2010).

A variety of potential solutions to declining PE enrolment have been presented, yet none have been discussed across those affected; the students. The students' voice is of great importance, since at the moment it is their decision to enrol in PE. Students provided suggestions for themes including: time before/after class, mandatory PE, course design, and the emphasis of options. All students agreed, even if they enjoyed PE, that they disliked being sweaty and not having adequate time to freshen up before their next class. The only time students felt this was not an issue was when they had PE at the end of the day. If students were given more time at the end of class they may work harder; since some indicated they would stop trying once they began sweating. This was a prevalent concern for both males and females, emphasizing that looking and smelling good were important to both gender. This theme is supported through research by Luke and Sinclair (1991), which identifies not having enough time to shower after class as a negative influence on PE that was controlled by the teacher.

When students were asked their opinions on PE being mandatory for four years of high school responses were mixed. Athletic students thought it would be great, but when speaking on behalf of others they felt students may resent it. Non-athletic students expressed they could deal with it, but would not prefer another course being forced on them since so many were already mandatory. Although research on mandating PE for four years has not been exclusively discussed in previous research, Allison and colleagues (2005) revealed that male adolescents who feel they do not have enough time for PA outside of school suggested that PE be made mandatory. Moreover, Manitoba mandated PE in 2008 with the aim "to provide students with planned and balanced programming to develop knowledge, skills, and attitudes for physically

active and healthy lifestyles.” If health advocates in Ontario want to push for an increase in mandatory PE credits, perhaps there are lessons to be learned from Manitoba to avoid a decline in PE preference.

Students also discussed a wide range of potential suggestions regarding the design of their PE class. Different courses could be designed based on different competition levels, or gender preference. As mentioned, overly competitive individuals and excessive competition generally led to negative PE experience and is supported by previous research (Ferrer-Caja & Weiss, 2000; Bauer et al., 2004; Allison et al., 2005; van Daalen, 2005). Conversely, some students enjoyed competition and being challenged by their peers. Students also discussed the option of having different courses based on competition levels; which has not been previously researched, but a similar theme has been given attention among successful PE classes. Gibbons (2009) identified designing courses according to gender preference as a successful method of increasing enrolment. This echoes suggestions from the current study to include more activities like dance, yoga, and self-defense class in PE courses; making less athletic females more comfortable.

Consistent with previous literature, the course content played an influential role in the PE experience (Luke & Sinclair, 1991; Gibbons, 2009). Students emphasized having more options to choose from and the opportunity to contribute their input as positive contributors. This suggestion was also reported by Gibbons (2009), specifically suggesting students appreciated having a say and not being told exactly what to do. Females within these successful PE classes emphasized the sense of ownership they received when teachers gave them the opportunity to be part of designing their class. Moreover, they felt their experience was more meaningful and they felt more inclined to be enrolled in PE (Gibbons, 2009). Furthermore, simply providing students

with more options for choices of activity, and affording them the opportunity to provide their input adds value to their PE experience (Luke & Sinclair, 1991; Gibbons, 2009).

Limitations

Part 1 identifies a variety of relationships between PE Rating, C7 NSBPA, and a variety of components that contribute to a healthy profile but does not go without limitations. Due to the inconsistency of questions asked to adolescents from C7 to C8, it was not possible to analyze a potential link between PE and SBPA for either cycle. This information could present more insight to adolescents' PA behaviours within the school environment but outside PE class. Additionally, it was not possible to analyze a difference in SBPA levels, which could have been compared to the decline in NSBPA from C7 to C8. Moreover, the NLSCY did not survey adolescents from the three territories providing an underrepresentation of Canadian adolescents. Self-report may also present itself as a limitation as participants are asked to identify their own physical activity levels and health related responses.

Although participants generally spoke freely about their PE experiences, with the clear difference between gender preferences, participants may have abstained from delving deeper into their personal opinions. Although, prior to each focus group participants were asked if they wanted to be in a group with all females, all males, or if it mattered and participants were not particular about their groupings. The focus groups were designed to facilitate each participant's individual opinions, but as with some focus groups, participants may have conformed to others' opinions to avoid confrontational conversation.

Future Directions

Findings from the current study have sparked interest for a variety of future research topics. PE Rating and BMI should be more closely examined among males, and the relationship between PE and BMI is generally under-researched among male adolescents. Self-esteem plays a large role among adolescents through a multitude of avenues and its relationship with PE should be further studied. PE may have a positive or negative influence on self-esteem depending on what type of environment is facilitated and the type of experience the student has. Continued effort should be made to identify what drives the disconnect between gender and PE, and gender and PA. With a greater understanding, initiatives can be put into place to bridge the gap within these relationships and increase equality between both genders. Each school is unique, emphasizing that until changes are made at a ministry level, administrators, PE departments, and PE teachers can consider school specific changes. Conducting informal focus groups and/or outreach campaigns to obtain more information on what can be changed may be a potential contributor to increasing PE enrolment rates within their school. Additionally, consideration should be given to what specific units and activities can be included in PE courses to shape unique courses that will engage students of all skill levels. Lastly, same-sex focus groups can be held and asked the same questions to delve deeper into a greater understanding of the gender divide.

Conclusion

The current study aimed to identify the influence of PE on PA along with other health variables, and to gain understanding on why PE enrolment rates continue to decline. Rather than making general connections between PA levels and health behaviours among adolescents, this study was able to follow the same group of participants over a two year period. Relationships were identified between PE Rating and C7 NSBPA and their respective variables, identifying both of them as significant predictors. Both of these predictor variables showed positive health change through higher PA levels, lower BMI, better health status, and more favourable self-esteem ratings. Unfortunately, results have also shown a decline in these important health variables over the two year period during adolescence. With these levels declining, adolescents are not preparing a positive health profile for later adolescence and adulthood. Since PE is an avenue for PA and has shown significant predictive ability with PA and health variables, it is important to understand why students are not enrolling; despite the mass preference for PE over other subjects. By hosting focus groups, knowledge and understanding were uncovered through the voice of the student. This insight avoids speculation and assumption by receiving answers directly from the source; the students. Each part of this study would be incomplete without the other, which emphasizes the complexity of contributors and barriers to PA and PE among adolescents.

Although PE is not the only avenue for adolescents to engage in PA, it is an opportunity made available to majority of students. PE is free of charge, will afford students with high school credits, and is provided as a regular part of their semester. More importantly, it is a class in which students can engage in PA, learn about health behaviours, and develop new skills, with the opportunity to spend time with their friends and potentially be part of an encouraging

environment. With Canada scoring a C in PE (AHKCRC, 2012), 7% of Canadian youth meeting the PA guidelines of 60 minutes per day (Colley et al., 2011), and the number of overweight adolescents increasing (Hedley et al., 2004; Shields, 2005; Statistics Canada, 2010) it is clear that health related incentives need to be initiated and acted out. As found in the current study, and supported by previous work (Nelson et al., 2006), PA levels are declining throughout adolescence; a time when shaping positive health habits can be crucial to their future. As mentioned, adolescents who are overweight or obese have a likely chance of remaining so into adulthood (Moran, 1999; Oren et al., 2003); this fact alone should indicate that targeting adolescents and promoting healthy living is vital.

PE should be part of all students' high school experiences as it presents them with information and opportunity they may not pursue elsewhere. Specifically, PE teachers are in a position to create a positive or negative PE experience through their behaviours and attitudes, along with the facilitation of class environment. A heavy responsibility is placed on teachers of grade 9 PE classes to set the tone which will leave students with an impression on whether they wish to enrol again in the future. If teachers do all they can to create this environment, the other main contributor to PE enrolment is likely course conflicts. Students find it difficult to include PE in their schedule when they have other courses they are either curious to take or need for prerequisite purposes. This problem is likely a result of the Ontario Ministry of Education eliminating the fifth year of high school in 2002, leaving students with four years to complete their high school degree, unless they independently pursue a fifth year. The number of courses mandated by Ontario's Ministry of Education should be reevaluated and mandating a second PE course should be considered.

As discussed among all students, a PE teacher who was not engaged or interested in the course generally deterred students from enrolling in upcoming years. This is a prime example of why having specialized teachers is important. Currently in Ontario, individuals with Bachelors of Education degrees are able to take additional basic qualification courses to certify them for a variety of teachable subjects. Health and Physical Education: Intermediate is among these options, which qualifies individuals to instruct HPE to students ranging from Grade 7 to Grade 10. The course consists of 72 in class hours, 28 online hours, and can be achieved in six weeks time. This undermines the importance of PE; suggesting it is not as valuable of an opportunity as it should be considered. As seen through these focus groups, having an under-qualified teacher can greatly affect the outcome of the future of PE courses. This is not a reflection of the school, but of the leniency surrounding qualifications for teacher specialties.

Furthermore, the relationship between PE Rating and self-esteem is important when considering comments made by participants regarding embarrassment and intimidation. PE can be viewed as an opportunity for students to be exposed by their skills and/or lack thereof. This suggests that students who have higher PE Ratings may generally be more confident people. This possibility is related to participants from focus groups, who discussed not feeling easily embarrassed and simply enjoying PE, whereas some described it as a very intimidating experience because they felt it was an opportunity to feel embarrassed. By providing adolescents with a positive PE experience, they have the opportunity to increase their confidence in PA and potentially pursue it elsewhere. Facilitating the shaping of healthy habits and behaviours in a welcoming environment, where students can not only engage in PA but understand its benefits, could be one preventative measure to declining PA levels among adolescents. Positive PE experiences have the opportunity to increase PA, decrease BMI, potentially increase Health

Status, and improve students' self-esteem. Although currently some may feel exposed and vulnerable, emphasis should be placed on the need for PE to be experienced in an environment where students of all skill levels can feel included.

Adolescent health should be at the helm of conversations among policy makers and stakeholders across Canada. The fact that adolescence is a highly influential time to shape healthy habits cannot be emphasized enough, and until this is taken into consideration among those in power to make mass change, schools may have to make their own initiatives. In the meantime, schools can make individual changes, within reason, to accommodate for the declining PE enrolment. Using the themes from this study, administration, department heads, and teachers can consider what can be done to bridge the gap between the benefits of PE and the students who do not wish to enrol. Since the PE curriculum is generally flexible, teachers have a lot of room to provide students with a variety of options. By gaining a further understanding of what it is that prevents students from enrolling, will shed light on the current issue. As J.K. Rowling, author of the best-selling Harry Potter series says "Understanding is the first step to acceptance, and only with acceptance can there be recovery."

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APPENDIX A

REVIEW OF LITERATURE

School Environment

The Canadian education system is among the best in the world through an academic lens, yet physical activity levels, along with eating habits, among children and adolescents in Canada have led to a predominantly overweight representation throughout the world (Veugelers & Schwartz, 2010). Understanding the impact of the school environment is beneficial in creating a variety of health promotion strategies targeting students with a variety of health backgrounds. One way to encourage health promotion and develop healthy habits among students is with the opportunity of physical activity (PA) through Physical Education (PE) class. For students who do not participate in sport or engage in PA outside of school, PE may play a crucial role in keeping them active.

PA has been defined as the expenditure of energy as a result of bodily movement and plays an important role in PE curriculum by providing students with a chance to practice and improve a variety of motor skills (Fishburne & Hickson, 2005). As mentioned, one form of PA that is offered to students within the school environment occurs through structured PE classes (Wechsler, Devereaux, Davis, & Collins, 2000). PE has been considered a subject in school where students can develop skills, knowledge, and attitudes vital for engaging in active, healthy living, and plays an important role in overall school experience (Fishburne & Hickson, 2005). Although the terms PA and PE are not interchangeable, the following literature review discusses the opportunity to engage in PA through PE classes and in turn the benefits associated with meeting PA recommendations.

The potential to increase PA levels through PE outlines the school environment as a convenient place to promote healthy behaviors for adolescents (Wechsler et al., 2000; Biddle, Gorely, & Stensel, 2004; Public Health Ontario, 2010). It should also be recognized that a large portion of an adolescent's time is spent at school, which indicates that this environment plays an influential role in their behaviors (Wechsler et al., 2000). PE class has been described as a consistent opportunity for students to engage in moderate to vigorous physical activity (MVPA) (Faulkner, Goodman, Adlaf, Irving, Allison, & Dwyer, 2007), to meet PA recommendations (Trudeau & Shephard, 2008), and is an effective avenue to increase PA levels (Hobin, Leatherdale, Manske, Burkhalter, & Woodruff, 2010). Educators, administrators, and all persons involved in providing students with education, have been identified as important influences in shaping lifelong health behaviours, especially pertaining to PA (Ferrer-Caja & Weiss, 2000). Furthermore, the main intention of PE courses in Canada is to assist students in shaping their health attitudes and behaviours to encourage long lasting PA (Gibbons, 2009)

In a safe and controlled environment, school provides an inclusive environment for all students despite their family influences (Faulkner et al, 2007), socioeconomic status, gender, and race (Hannon, 2008). School also facilitates the promotion of healthy activities because it reaches a large population where interventions have been shown to be effective (Tassitano et al., 2009; Camhi, Phillips, & Young, 2010). The importance of the school environment in influencing health behaviours among adolescents is not a new development. School plays a vital role in promoting PA and shaping health behaviours to carry into adulthood; specifically PE is a good predictor of tracking PA from adolescence into adulthood (Trudeau, Laurencelle, & Shephard, 2004). The aforementioned evidence emphasizes that the school environment should be taken advantage of by health advocates, administrators, educators, parents, and students on

the quest for a healthier lifestyle. PE classes within schools are in a vital position to provide opportunities to increase students' PA levels (Pate, Davis, Robinson, Stone, McKenzie, & Young, 2006). Despite the power of the school environment, educators are running into a variety of challenges that are influencing PE offerings and enrolment including competing with academic responsibilities (Pate et al., 2006) and lack of financial resources (McKenzie & Kahan, 2008).

Research by Hobin and colleagues (2010) used self report data from 73 high schools across Ontario, Canada (n=23, 817 students) as part of the School Health, Action, Planning, and Evaluation System (SHAPES) study (2005-2006). Questions of interest included demographic (age, grade, sex, height, and weight), behavioural (moderate to vigorous physical activity [MVPA] in last seven days, smoking behaviour in last 30 days, and sedentary behaviour in last seven days), and psychological (parental support and perception of friends' activity behaviours) variables connected to the school environment. School-level policies, facilities, and programs relevant to PA were also assessed. Findings revealed that schools with a greater number of students taking PE have students with higher PA levels than schools with a smaller number of students in PE. Despite the crucial role PE plays in providing students with opportunities to be physically active, many students need to be enticed to enrol because of the generally negative attitudes toward PE class (Hobin et al., 2010), especially in Ontario where high school PE is only mandatory in grade nine. Bear in mind, the availability of the course alone will not entice students to take PE and characteristics of the school may also influence enrolment rates of PE. The influence of school characteristics is echoed in a suggestion presented by the Annual Report on Ontario's Publicly Funded Schools (AROPFS) (People for Education, 2010). People for

Education (2010) suggests that creating an overall health school environment is more effective when encouraging students to enrol in PE.

Additionally, Camhi and colleagues (2010) collected data from 215 grade nine female who were enrolled in two consecutive semesters of PE at an all-female public high school in Baltimore City, Maryland. Baseline testing occurred at the beginning of the PE program, eight months after the PE intervention, and again at the end of each school year for two years following the program. Results identified girls' high school PE classes resulted in a variety of health benefits including lowering body mass index (BMI), lowering adiposity measures, and improved body composition measures. Females who were considered normal weight or overweight showed significant beneficial improvement in fitness measurements (e.g. exercise heart rate) along with the ability to maintain these benefits for two years following the program.

As mentioned, People for Education (2012) outlined the school's overall health atmosphere as an effective component of promoting health among students of all ages health related success is dependent on not only what is offered within the school, but also the integration of activities within the community through fitness and health centres. The school environment is a powerful avenue for promoting PA and administrators and educators should consider their influence on the development of students' health behaviours (Dwyer, Allison, LeMoine, Adlaf, Goodman, & Faulkner, 2006). Furthermore, educators are continuously challenged to provide enticing PE classes (Gibbons, 2009). Educators and administrators need to utilize the information available to create PE classes that are enticing to all students.

Unfortunately literature has shown the inherent difficulty in providing PE classes that students wish to enrol in (Gibbons, 2009). Research also suggests that PE lacks appeal to majority of

students and does not receive high priority when compared to other subjects which could be a result of the elimination of Grade 13 in Ontario as of 2003 (Dwyer et al., 2006).

Research suggests that as an individual's age increases, their fitness levels decrease (Camhi et al., 2010), which identifies adolescence as an important time in one's life to emphasize the importance of shaping life-long health behaviours. It is of importance to work toward preventing the consistent decline of PA among adolescents, in an attempt to maintain their health into adulthood. PE has been found to be a good opportunity for students to understand and develop the importance of PA and as a result experience the benefits of creating long term health behaviours.

Benefits of Physical Activity through Physical Education

According to the Health and Physical Education Curriculum (2000) as provided by Ontario's Ministry of Education, "participation in health and physical education provides a unique vehicle for students to develop the skills, knowledge, and attitudes that promote lifelong healthy active living." (p. 17). Adolescents considered overweight or obese who engage in different forms of PA have less body fat (Nassis, Psarra, & Sidossis, 2005), and therefore a better chance at avoiding cardiovascular disease (Andersen et al., 2006). The benefits of PA through PE include the development of healthy living behaviours, a skill base that provides adolescents with the ability to participate in many different activities, and the promotion of life-long habit development of healthy behaviours (Fishburne & Hickson, 2005).

Adolescents who engage in regular PA also experience higher self-esteem, greater social skills, and less chance of engaging in health risk behaviours (Aaron et al., 1995; Tremblay, Inman, & Willms, 2000). It has also been found that engaging in PA throughout childhood and

adolescence has a direct impact on positive PA behaviours during adulthood, which decreases the chance of chronic disease development (Malina, 1996; Trudeau, Laurencelle, Tremblay, Rajic, & Shephard, 1999). The Public Health Agency of Canada (2011) supports participation in PA as it increases adolescents' strength, bone density, and cardiovascular health (Bailey & Martin, 1994).

Aside from weight regulation for overweight and obese adolescents, PA has a wide array of benefits for students (Janssen, 2007). Research suggests that there is a link between increased PA and cognitive benefits. Engaging in PA may offer protection against stress and depression, and promote psychological well-being (Hassmen, Koivula, & Utela, 2000; Nelson & Gordon-Larsen, 2006; Pate et al., 2006). Literature suggests more research should be done to identify the specific amount of PA required to positively impact mental and emotional health factors within youth and adolescents (Sallis, Prochaska, & Taylor; 2000; Janssen, 2007). Janssen (2007) also acknowledges that a great deal of research has been done in terms of determining the recommended amount of PA to attain a variety of biological outcomes, but more research is required in terms of identifying a dose-response effect between PA and psychological benefits for this population.

Tassitano and colleagues (2008) hypothesized that PE class may be influential in promoting the development of health behaviours, since PA is an integral part of the course curriculum. Bailey's (2006) meta-analysis of PE goals and objectives, and curriculum of 50 countries suggests that PE classes can have a positive influence on physical, lifestyle, affective, social, and cognitive domains of an individual. It should be acknowledged that policy makers, health advocates, and educators should focus on the overall general education of all students, including health education. The argument goes deeper than simply including PE in the

curriculum but enticing students to enrol through creating a positive and healthy school environment (Bailey, 2006).

Studies have also shown that there is a positive relationship between PA and academic achievement (Coe et al., 2006; Trudeau & Shephard, 2008; Public Health Ontario, 2010, Nelson & Gordon-Larsen, 2000). Identifiers of improved academic achievement through increased PA levels include the students heightened arousal, reduced boredom, which in turn may increase students' concentration and ability to pay attention (Coe, Pivarnik, Womack, Reeves, & Malina, 2006; Trudeau & Shephard, 2008). Coe and colleagues (2006) observed the relationship between academic achievement and PA levels among middle school children (N=214) from one public school in western Michigan. MVPA was measured on a 3-day recall and academic achievement was measured by using four grades from academic core courses and standard test scores. Results showed that students who met or exceeded the Healthy People 2010 guidelines for vigorous activity received better scores on their academic measurements. It should be noted that the Healthy People guidelines are American based and for vigorous activity suggest participation for 20 minutes per day for at least three days per week. Through a literature review of relationships between PE and academic performance from 1966-2007, Trudeau and Shephard (2008) found that higher PA levels may have a relationship with higher self-esteem, which has shown to improve academic performance and behavior in the classroom. This finding echoes the suggestion that students who are more active than their peers are likely to have a higher level of arousal which may be beneficial in providing a link between a learning atmosphere and cognitive development (Tassitano et al., 2008). This is a positive health message that should be utilized when promoting PA through PE class. Trudeau and Shephard (2008) suggest that PE should assist adolescents in achieving PA guidelines without hindering academic performance. Trudeau

and Shephard (2008) found that some parents of adolescents agreed with the misconception that PE interferes with academic studies, although there is no evidence to prove so.

High school students who attend PE class regularly reported healthier eating behaviours (e.g. higher intake of fruit and vegetable, and lower intake of soda), and less time spent watching television during the week (Tassitano et al., 2008). Consistent participation in PA may actually play an influential role by increasing blood flow to the brain, impacting arousal neurohormonal balance, influencing nutritional status, and promoting the growth of interneuronal connections (Shephard, 1996).

Attention should also be given to individuals within special populations such as those who have learning disabilities. Research done on PE classes consisting of students with learning disabilities suggests a lower student-instructor ratio (Bluechardt & Shephard, 1995) is more beneficial. There has also been support for the suggestion that outdoor PA may decrease behavior problems in adolescents who experience attention deficit hyperactive disorder (Kuo & Taylor, 2004). Moreover, students who struggle with a reading disability showed improvement after a PA intervention consisting of throwing and catching, coordination and balance, and stretching (Reynolds, Nicholson, & Hambly, 2003).

Overall, research shows that through PA engagement adolescents are likely to experience a multitude of health benefits such as higher self-esteem (Aaron et al., 1995), protection against stress and depression (Hassmen et al., 2000; Nelson & Gordon-Larsen, 2006; Pate et al., 2006), improved academic achievement (Coe et al., 2005, Trudeau & Shephard, 2008), healthier eating behaviours (Tassitano et al., 2008), and positive outcomes for individuals with learning disabilities (Bluechardt & Shephard, 1995; Kuo & Taylor, 2004; Reynolds et al., 2005). This provides health advocates and researchers, with more ammunition to provide administration and

educators with information on the importance of the school environment as a vehicle for PA through PE. Moreover, PA should be identified as a crucial component of adolescents' lives as physical inactivity (PI) will yield negative health outcomes. Adolescents with low PA levels are at a higher risk for obesity (Sallis & Patrick, 1994; Thomas, 2006), a variety of cardiovascular risk factors (Sallis & Patrick, 1994; Camhi et al., 2010), and developing osteoporosis later in life (World Health Organization, 2004). Furthermore, the prevalence of overweight and obese Canadians has continually increased from 1985 to 2003 (Katzmarzyk & Mason, 2006), and PI may be part of the reason. Succumbing to PI habits in adolescence may set the tone for an individual's life in terms of shaping long term health habits (Dietz, 1998; Moran, 1999; Janssen et al. 2004). It is important to understand the repercussions of PI from a young age and make a conscious effort to transfer healthy behaviours into adulthood.

Research has shown that throughout youth and adolescence, PA patterns begin to decline (Heath, Pratt, Warren, & Kann, 1994; Aaron et al., 1995; Kimm et al., 2002; Nelson, Neumark-Sztainer, Hannan, Sirard, & Story, 2006; Faulkner et al., 2007, Colley et al., 2011; AHKCRC, 2012; Canadian Fitness & Lifestyle Research Institute, 2012). The aforementioned data suggests that if efforts are made to increase adolescents' PA levels through PE enrolment, the consequences of PI may be avoided. Research examining PA levels of children and adolescents have found that those who are at a higher risk for overweight or are considered overweight engaged in less PA than their normal weight peers (Sallis et al., 2000). Moreover, PI increases chances for 25+ chronic illnesses, including overweight and obesity, and some cancers (Booth & Lees, 2007). To put this into perspective, in 2007 chronic diseases were responsible for 75% of all deaths in Ontario (AHKCRC, 2012). This indicates the importance of decreasing PI and increasing PA to engage in and maintain a healthy lifestyle. As mentioned, PE is an excellent

vehicle for adolescents to increase their PA levels and shape some lifelong health habits, yet research shows that some students do not enjoy PE for a variety of reasons.

Canadian Focus

The Health and Physical Education (HPE) curriculum, as provided by Ontario's Ministry of Education, was updated in 1999 (grades 9 and 10) and 2000 (grades 11 and 12). The curriculum document outlines that HPE has been developed to facilitate learning opportunities to assist students with realizing their potential in life. Three main goals that students will achieve are: (1) "understanding of importance of physical fitness, health and well-being and the factors that contribute to them"; (2) "a personal commitment to daily vigorous physical activity and positive health behaviours"; and (3) "the skills and knowledge they require to participate in physical activities throughout their lives" (p. 2).

More specifically, HPE courses are organized into four strands (with the exception of an additional grade 11 course titled *Health for Life*): physical activity, active living, healthy living, and living skills. Each of these strands is broken down further into subcategories, with some examples being: conflict resolution, decision, making healthy growth and sexuality, healthy eating, physical fitness, and sports and recreation (Table 19). It should also be noted that PE is the only course in which movement skills, healthy living, and active participation are fully emphasized, which suggests that it is a crucial part of each student's high school experience.

Table 19

Ontario HPE curriculum

| Strands | Grade 9 | Grade 10 | Grade 11 (Healthy Active Living) | Grade 12 |
|-------------------|--|---|--|--|
| Physical Activity | <ul style="list-style-type: none"> • Movement Skills and Principles • Sport and Recreation | <ul style="list-style-type: none"> • Movement Skills and Principles • Sport and Recreation | <ul style="list-style-type: none"> • Movement Skills • Sports and Recreation | <ul style="list-style-type: none"> • Movement Skills • Sports and Recreation |
| Active Living | <ul style="list-style-type: none"> • Active Participation • Physical Fitness • Safety | <ul style="list-style-type: none"> • Active Participation • Physical Fitness • Safety | <ul style="list-style-type: none"> • Active Participation • Physical Fitness • Safety | <ul style="list-style-type: none"> • Active Participation • Physical Fitness • Safety |
| Healthy Living | <ul style="list-style-type: none"> • Healthy Growth and Sexuality • Substance Use and Abuse • Personal Safety and Injury Prevention | <ul style="list-style-type: none"> • Healthy Growth and Sexuality • Substance Use and Abuse • Healthy Eating | <ul style="list-style-type: none"> • Healthy Growth and Sexuality • Personal Safety and Injury Prevention • Mental Health | <ul style="list-style-type: none"> • Healthy Growth and Sexuality • Personal Safety and Injury Prevention • Mental Health |
| Living Skills | <ul style="list-style-type: none"> • Decision Making • Conflict Resolution • Social Skills | <ul style="list-style-type: none"> • Decision Making • Conflict Resolution • Social Skills | <ul style="list-style-type: none"> • Decision Making • Stress Management • Social Skills | <ul style="list-style-type: none"> • Decision Making • Conflict Resolution • Social Skills |

| Strands | Grade 11 (Health for Life) |
|------------------------|---|
| Determinants of Health | Personal Factors Social Factors |
| Community Health | Consumer Health Health and Environmental Factors Health Promotion |
| Vitality | The Concept Personal Commitment |

The Canadian Physical Activity Guidelines for Adolescents (2012) developed by the Canadian Society of Exercise Physiology, suggests that being active for at least 60 minutes on a daily basis can help adolescents grow stronger, have fun playing with friends, feel happier, maintain a healthy body weight, improve self-confidence, and learn new skills.

Another useful resource is the Active Healthy Kids Canada Report Card (AHKCRC) (2012) which provides each province with grades representing their score in terms of PA, PE, active play and leisure, and sedentary behavior, along with 20 other health indicators. This tool is publically accessible and has been used by governments, health advocates, educators, and researchers. Through the integration of scientific knowledge and strategies for health advocates and stakeholders the AHKCRC (2012) strives to influence healthy change, and emphasize the importance of prioritizing PA among Canadians. The AHKCRC (2012) acknowledges that HPE is vital in making Ontario the healthiest province through emphasizing the importance of school as the best environment to promote health. PE is the most financially efficient way to provide adolescents with information and understanding of skills that will assist them through the transition to adulthood (AHKCRC, 2012). The AHKCRC (2012) suggests that the “Ontario Ministry of Education should require that high school students take one PE credit in every grade from 9-12 to qualify for graduation” (p. 75). This suggestion has also been supported by Public Health Ontario (2010); which is a corporation committed to advocating health for Ontarians. It should be noted that Manitoba has made PE mandatory for all four years of high school with a new curriculum that was implemented in 2008. The new curriculum specifically addresses five major health risks including: inadequate PA, unhealthy diet, drug use, sexual behaviours, and behaviours that result in injuries (Government of Manitoba, 2007). Furthermore, British Columbia and Quebec require at least 30 minutes of PA every day until graduation (People for Education, 2011).

In order for PE to be beneficial for students, the course must provide them with MVPA each class (AHKCRC, 2012). Two important aspects of a beneficial PE course should also include consistency and quality of the activities provided (Public Health Ontario, 2010).

According to People for Education (2011), new curriculum will be implemented within the next few years in secondary schools which will cover mental health, sexual health, and physical fitness. Although these topics are of interest and importance, the problem lies within the lack of enrolment in PE classes. Ontario's revised HPE curriculum will focus on shaping students' knowledge and skills about active and healthy living, and physical, social, and emotional health (People for Education, 2012). The Ontario Ministry of Education has also supplied schools with suggestions to promote PA, healthy eating, mental health, bully prevention, personal safety and injury prevention, and substance use and abuse prevention (People for Education, 2012).

Current Physical Education Enrolment Trends

Dwyer and colleagues (2006) conducted a study assessing PE enrolment and other school-based PA opportunities. Questionnaires focusing on PE classes, intramural programs, and inter-school programs were collected from 474 randomly selected secondary schools in Ontario. Results showed that 78-89% of students who were enrolled in PE most met the recommendation of MVPA as outlined in the HPE curriculum, and that there was a decline in PE enrolment across grade 9 (97.9%), grade 10 (49.6), grade 11 (43.3%), and grade 12 (35.9%). While these findings provide support that PE is an effective vehicle for students to meet Canadian recommendations for PA, the trend of decreasing enrolment may be a cause for concern.

Similar trends were shown by Faulkner and colleagues (2007) through an analysis of four biennial cycles of the Ontario Student Drug Use Survey which was distributed to publicly funded high schools throughout Ontario. Some examples of questions asked in the survey were "Are you enrolled in a PE class?", "Do you attend PE daily?", and "On how many days of the last five school days did you participate in PA for at least 20 minutes that made you sweat and breathe

hard in PE class for your school?’. Results showed a negative relationship between students and enrolment numbers for Ontarians. From 1999 to 2005 the overall percentage of students who were enrolled in PE declined. Grade 9 and 10 students were more likely to enrol in PE, attend PE class daily, and participate in MVPA than their senior cohorts. The enrolment rate showed a linear decline for each grade from 1999 to 2005. When comparing enrolment rate between the genders, males were consistently enrolling in PE more often than females; but it should be noted that both genders show a linear decrease in enrolment from 1999 to 2005 (Table 2).

More recently, the aforementioned SHAPES-Ontario study conducted by Hobin and colleagues (2010) also assessed student- and school-level predictor variables by asking school administrators at 73 high schools to complete a module on programs and policies within the school. Components of the module included identifying the student to teacher ratio for PE classes and to report how many times per week does a junior and senior student take part in PE class. This part of the SHAPES study revealed that larger class sizes in PE when compared to other subjects did not prevent the student from enrolling. This suggests the idea of allowing for larger class sizes in PE at the high school level; where class management is not a large of an issue when compared to grade school. This is an important finding because educators and administrators do not have to set low class capacity numbers; allowing more students to enrol. Moreover, the overall student enrolment in PE was 62.4% with more males than females and more students in lower grades than higher grades, and more males than females enrolled in PE (Table 20).

Table 20

PE Enrolment Rates in Ontario: 1999-2006

| Year | Faulkner et al. (2007) | | | | | Hobin et al.(2010) |
|---------|------------------------|------|------|------|-----------|--------------------|
| | 1999 | 2001 | 2003 | 2005 | 1999-2005 | 2005-2006 |
| | % | % | % | % | % | % |
| Sex | | | | | | |
| Males | 72.3 | 69.8 | 71.8 | 65.2 | 69.2 | 67.0 |
| Females | 68.2 | 55.7 | 68.7 | 55.7 | 62.4 | 57.5 |
| Grade | | | | | | |
| 9 | 81.5 | 71.5 | 78.8 | 70.6 | 75.4 | 73.4 |
| 10 | 71.7 | 64.0 | 67.8 | 57.8 | 64.3 | 63.2 |
| 11 | 65.1 | 56.1 | 67.5 | 60.2 | 63.1 | 58.7 |
| 12 | 58.1 | 53.6 | 66.4 | 54.5 | 59.2 | 51.3 |
| Total | 70.3 | 63.1 | 70.2 | 60.3 | | 62.4 |

Similarly, the AHKCRC (2012) also reported that there was a significant negative relationship between grade level (9-12) and students enrolled in at least one PE class per week (grade 9-10=84%, grade 11-12=57%).

Since PE is mandated at a provincial level there is limited consistency across the country which makes it difficult to have a discussion at a national level (AHKCRC, 2010). In Ontario, high school students only require a grade nine PE credit, whereas in 2008 Manitoba government mandated PE for four years in Manitoba at 110 hours per credit in high school. Moreover, PE is also mandated for four years in Quebec at 150 minutes per week; thus students receive every 2 to 3 days on a 9 day cycle. In New Brunswick, PE is mandated at 74-135 minutes per week over two years (grade 9 and 10). Lastly, PE is not compulsory in PEI, and for one credit in the remaining provinces and territories, including Ontario.

PE is vital for adolescents as it promotes physical activity and presents them with information on developing healthy habits as they shape their future. According to the AHKCRC

(2010), each weekday that adolescents participate in PE decreases the chance of becoming an overweight adult by 5%. It is not clear whether the benefits are associated with time being active or the educational content on healthy eating within the course; it is likely a combination of the two. Ontario education policy only mandates one PE credit for graduation in high school; which may explain why enrolment decreased with each grade. Promoting PA is not a new trend; health advocates have been pushing for an increase in PA for many years now (Janssen, 2007). As of 2002, adolescents were recommended to increase their PA time by 30 minutes per day (Janssen, 2007). With PA levels declining since then, Canadians should have an idea of the improvements that need to be made among adolescents' PA levels.

Despite the good intentions of health advocates throughout Ontario and Canada, the numbers and trends representing adolescents' activity levels and PE enrolment have not shown promise. According to the AHKCRC (2012), Canada has scored a C in Physical Education. This grade suggests that although Canada has improved from a score of C- from the AHKCRC (2010), majority of students are still not meeting 150 minutes of PA per week.

Current Health Trends

Janssen, Katzmarzyk, Boyce, King, and Pickett (2004) reported that the prevalence of overweight and obese youths is rising in Canada; along with many other countries throughout the world. Parallel to Janssen et al., (2004), Moran (1999) suggests that 70-80% of obese adolescents will remain obese throughout adulthood. Additionally, Janssen (2007) examined self-reported measures of PA of adolescents and determined that in 2003, 49.7% of 12-19 year olds were classified as physically active. According to the Canadian Community Health Survey (2003), gender and age differences were shown among Canadian youth when observing PA

levels. Janssen's (2007) analysis of this data showed that male adolescents (55.6%) had significantly higher PA levels when compared to female adolescents (40.5%). Moreover, when comparing age groups, 12 to 14 year olds (51.9%) were more active than 15-19 (46.7%) (Janssen, 2007). These results echo other findings suggesting that Canadian female adolescents are less engaged in PA, and have been for quite some time (Sallis, 1993; Allison and Adlaf, 1998; Pfeiffer, Dowda, Dishman, Sirard, Pate, 2007).

Furthermore, Shields (2005) identified that one quarter of children are now overweight or obese and the prevalence of obesity has tripled over the last 20 years. More specifically, the presence of overweight status among adolescents has risen in males (1999-2000=14%, 2003-2004=18.2%) and females (1999-2000=13.8%, 2003-2004=16.6%) (Hedley et al., 2004). In solution to this, it has been determined that 30 minutes of exercise at three days per week is successful in lowering blood pressure among adolescents who are hypertensive. To echo these findings, Statistics Canada analyzed the 2010 Canadian Community Health Survey and reported findings that 20% of Canadians between the ages of 12 and 17 were considered overweight or obese. Moreover, 30-40 minutes of aerobic exercise at three to five days a week would be beneficial in addressing adiposity in obese adolescents (Strong et al., 2005).

Engagement in Physical Activity

Nelson and colleagues (2006) followed individuals through the transition from adolescence to adulthood through the longitudinal study: Project EAT. Questions assessing PA, health behaviours, and change in weight after five years were examined. Results showed a significant longitudinal decline in MVPA. The time spent engaging in MVPA declined among females from early to mid-adolescence (5.9-4.9 h/wk) to mid- to late adolescence (5.1-3.5 h/wk).

Although males also showed a decline in MVPA, it was much more delayed throughout adolescence. Specifically, males did not significantly decline from early to mid-adolescence, but showed significant decline from mid- to late adolescence (6.5-5.1 h/wk). It should be taken into consideration that although males begin their PA decline at a later age than females, both genders do show lower levels of PA by late adolescence (Nelson et al., 2006). It is of great importance to understand that these health behavior will likely transition into adulthood as supported by research (Moran, 1999; Kimm et al., 2002; Tammelin, Näyhä, Laitinen, Rintamäki, & Järvelin, 2003; Boreham et al., 2004; Gordon-Larsen, Nelson, & Popkin, 2004).

Research suggests that only seven percent of Canadian youth are close to meeting the Canadian PA Guidelines of 60 minutes per day of MVPA (Colley et al., 2011). Colley and colleagues (2011) analyzed accelerometer data from the Canadian Health Measures Survey (CHMS) (2007-2009) to determine PA measurements among Canadian children and youth (age 6-19). Overall data analysis showed that 44% (males=53%; females=35%) of youth attain 60 minutes of MVPA on three days of the week. Moreover, 7% of youth (males=9%; females=4%) attain 60 minutes of MVPA on six days of the week. When this data was broken down by age group, the results showed that 15 to 19 year olds were less likely to engage in MVPA at least one, three, and six days per week when compared to the 11 to 14 age group and the six to 10 age group. According to the Canadian Physical Activity Guidelines, developed by the Canadian Society for Exercise Physiology (CSEP) (2012), individuals between the ages of 12 and 17 should be engaging in a minimum of 60 minutes of MVPA on a daily basis. More specifically, CSEP suggests that PA should be broken down into at least three days of vigorous activity and at least three days of muscle and bone strengthening activities.

Additionally, the Canadian Fitness and Lifestyle Research Institute's (2012) CANPLAY study has been measuring youth's PA levels through the use of pedometer counts. Findings from this study have shown a decline in the mean number of steps taken daily among Canadians aged 15 to 19 from 2005 (9797 steps) to 2011 (9586 steps). Males have, and continue to take, an average of more steps daily (2005=10132, 2011=10087) when compared to females (2005=9463, 2011=9134), but it should be taken into consideration that both have declined. Of the three age groups measured (5-10 years old, 11-14 years old, and 15-19 years old), 15 to 19 year olds take the least amount of steps.

Decline in PA throughout adolescence has been a consistent trend in the literature for many years (Kimm, et al., 2002; Faulkner et al., 2007, AHKCRC, 2012). Moreover, cross-sectional analysis has shown that decline in PA is not a new trend and PA levels may decline as much as 50% during adolescence (Heath et al., 1994; Aaron et al., 1995). The underlying reason for decline in PA during adolescence has not been directly identified (Kimm et al., 2002) but school administration and educators may be in a position to influence health behavioural changes. As previously mentioned, PE is one way for students to engage in PA and shape long lasting PA and health habits but research suggests that a large amount of students do not show interest in PE.

Physical Education Enrolment Barriers

It has been shown that although both genders show decline in PA throughout adolescence (AHKCRC, 2012); females have lower levels of PA and lower PE enrolment rates than males (Kimm et al., 2002, Faulkner et al., 2007). In an attempt to identify similar influences between males and females on PE, Luke and Sinclair (1991) asked 488 students to answer three

questions regarding their PE experience from kindergarten to grade 10. The three questions of interest were: “What factors in the K-12 PE experience of male/female students contribute to the development of positive/negative attitudes toward PE?”, “Are these factors different for males and females?”, and “Are they different for students electing to take school PE?” Results showed that curriculum was the most influential factor for perception of PE class for both genders. Specifically, both males and females identified long bouts of running and fitness testing as the least favourable components of the PE curriculum. Atmosphere and tone of the PE class was ranked the second most influential factor influencing perception of PE class for males and females. Results also showed that students appreciate the sense of freedom from classroom subjects and the ability to be physically active in large spaces. Interestingly, both genders had negative feelings toward coeducational PE classes, which is a similar finding to research on successful female PE classes (Gibbons, 2009).

Research has been able to provide some explanation for students’ decision to not enrol in PE as a result of disinterest in the course. In terms of self-perception, analysis showed that students who view themselves positively in PE continued to enrol, whereas students who viewed themselves negatively in PE did not enrol. Despite males having higher enrolment rates than females for PE class, some males disliked PE because they felt they were unfit, unhealthy, and could not keep up with the class (Luke & Sinclair, 1991).

Through a qualitative inquiry of five females’ PE experiences in Toronto, Ontario, van Daalen (2005) uncovered a series of factors involved in the student’s decision to avoid PE enrolment. Generally, females only enjoyed PE when they were good at the sport or activity in which they were participating. Females often felt embarrassed, self-conscious, pressured, and identified PE as having a negative impact on their self-esteem. In terms of body image, females

felt uncomfortable changing in front of their classmates and complained about not having enough time after class in the change room. Furthermore, females claimed that they began disliking PE when they started being measured by their athletic ability, and all participants claimed that PE made them feel bad about themselves at some point (van Daalen, 2005).

As cited by Gibbons (2009), many studies showed that the PE classes currently offered to high school females in Canada may not adequately engage them in the appropriate PA during this transition from childhood to adulthood (Olafson, 2002; van Daalen, 2005; Gibbons & Humbert, 2008). Interestingly, females often do not experience their ideal PA preferences within their PE class which presents a missing link between their values and the course content (van Daalen, 2005; Gibbons, 2009). Dishman et al. (2005) showed that enjoyment was found to play a pivotal role in influencing females' participation in PE class, while Hill and Cleven (2005) reported that males prefer team sports and females prefer individual activities in terms of PE activity preferences. While, research shows that class size may not be an influential factor of PE enrolment (Hobin et al., 2010), team sizes within the class should be small to provide all students a greater chance of being involved (Rink & Hall, 2008). These findings begin to explain why PE is an unattractive elective for females, and indicate that more research should be done to understand PE barriers that males encounter. With some understanding of PE preferences and barriers, administration and educators should seek out a variety of health related tools when shaping PE classes that will be inviting for a variety of students. Moreover, there are some trends of successful PE classes that should be given consideration when designing and developing PE classes.

Successful Trends of Physical Education Classes

Although adolescents' PA levels and PE enrolment is on the decline, there are some themes present among successful PE classes that deserve attention. Gibbons (2009) analyzed course outlines, hosted interviews with PE teachers, and distributed student questionnaires to 32 senior female PE classes throughout British Columbia, Canada. Data analysis identified six themes of importance to a successful PE class. The themes included: focus on lifetime PA, value-added options, student involvement in course development, gender as a course design, authentic assessment, and positive and respectful class environment. These themes emphasized promoting activities that will be maintained throughout a lifetime, receiving external certification (e.g., CPR), and providing students with a sense of ownership of their learning. Moreover, suggestions were made to design courses to specific populations to meet the needs of a wide range of students, assessing students on tasks that would be performed in real world settings, and emphasizing the importance of a safe and healthy learning environment. More specifically, females identified the value of feeling comfortable going to a fitness centre on their own after learning about different exercise machines and other options available at the centre. Females also outlined the importance of being able to contribute their opinion to the class in terms of topics to be covered; this gave them a feeling of trust which made them feel a sense of ownership. Moreover, females found enjoyment in being in an all-female PE class, and teachers identified the reality that some males and females have different preferences for PA at the senior level and offering separate classes is important. Of all the students interviewed, only two identified having males in their PE class as something they valued. Perhaps most importantly, females identified feeling safe and included as a vital part of a successful PE class. Some females emphasized not feeling embarrassed or worrying about being ignored due to lack of ability as what they enjoyed the most about PE.

Gibbons (2009) reiterates the fact that there is a gap between females and PE programs. Some females describe their PE experience as boring, repetitive, and look forward to finishing the course without the intention of returning. Although this study focused on females, it may be fair to assume that similar themes would emerge from a male based study; since previous work has shown consistency with positive and negative attitudes toward PE (Luke & Sinclair, 1991). Furthermore, if females do not value their PE class, they will likely avoid enrolling in the following year of high school (Gibbons, 2009).

Moreover, research shows that when students feel that their success is attainable through hard work and an interest in learning, they feel more invested in the PE class as they understand that they have control of their achievement (Standage, Duda, & Ntoumanis, 2003). Ferrer-Caja and Weiss (2000), examined the relationships between social and individual factors, intrinsic motivation, and motivated behaviours of students (N=407, male=206, female=201) at eight high schools. Results showed that students who believed their PE class promoted participation and learning, enjoyed class, had fun, and wanted to attend. Students in turn chose more difficult activities, exerted more effort, and continued engaging. Conversely, when students believed their class promoted competition with much attention given to making mistakes, they were less likely to enjoy class, and have fun. Ferrer-Caja and Weiss (2000) emphasize that a PE class environment should outline effort, learning, and individual improvement as important factors to increase motivation and effort. Furthermore, if PE classes were designed with students' preferences in mind, enrolment rates would likely increase, thus leading to healthier students and a healthier school.

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APPENDIX B

Semi-Structured Question Guide

| | | | | |
|---|----------------------------------|---------------------|-------------------------------|----------------------------|
| Define the term: Physically Educated. What does that mean to you? | | | | |
| When you hear “Physical Education” what comes to your mind | | | | |
| Probe: Do you think it’s hard for some students to get the PE credit? | | | | |
| Think back and recall your first experience Physical Education in high school. What was your first impression? | | | | |
| Probe: Speak on behalf of a friend who isn’t active. What kind of experience did they have? | | | | |
| What influenced your decision, or a friend’s decision, to enrol or not enrol in Physical Education? | | | | |
| How would you feel about being required to take Physical Education for four years of high school? | | | | |
| Probe: How do you feel about competitive versus non-competitive classes being offered? | | | | |
| <p>List – students were provided with blank sheets of paper</p> <p>On one side of your paper list two items that you like about Physical Education, and on the other side of the paper list two items that you dislike about Physical Education.</p> <p>Researcher collected the sheets and combined them into a list on chart paper within viewing distance of all participants.</p> | | | | |
| <p>Inventory – students copied the items listed on chart paper onto an inventory sheet that already included a list of potential likes/dislikes.</p> <p>Ask yourself “Is this something that really influences my Physical Education experience?” and give the item a score from 1 to 5.</p> | | | | |
| 1 Strongly Disagree | 2 Somewhat Disagree | 3 Neutral | 4 Somewhat Agree | 5 Strongly Agree |
| Which items did you agree or strongly agree with (4 or 5)? | | | | |
| Which items did you disagree or strongly disagree with? (2 or 1)? | | | | |
| <p>Let me share some items that we haven’t talked about, but were mentioned in previous focus groups.</p> <p><i>The researcher lists the items that were not discussed and gives the students a chance to comment on them.</i></p> <p>Probe: What do you think about some of the items that were already on the inventory?</p> | | | | |
| Imagine that the subject of Physical Education was a person. What kind of person would they be? | | | | |
| If your job was to get students to enrol in Physical Education, what would you emphasize? | | | | |
| <i>Review key questions and ideas that emerged.</i> | | | | |
| What is important that we talked about today? Did we miss anything? | | | | |
| <i>Students are given an evaluation form.</i> | | | | |

APPENDIX C

Focus Group Inventory

[illegible]

APPENDIX D

Focus Group Evaluation Form

Focus Group Evaluation Form

(This form will remain anonymous)

How would you rate your experience today? (Circle one)

Positive

Neutral

Negative

Did you have something you wanted to say but did not get a chance to?

Comments on what you liked and/or did not like about this focus group:

VITA AUCTORIS

NAME: Alexandra Catherine Wiseman

PLACE OF BIRTH: Windsor, Ontario, Canada

YEAR OF BIRTH: 1989

EDUCATION: St. Thomas of Villanova Secondary School
LaSalle, Ontario
2003-2007

University of Windsor
Windsor, Ontario
2007-2011
Bachelor's Human Kinetics
Movement Science

University of Windsor
Windsor, Ontario
2011-2013
Master's Human Kinetics
Applied Human Performance